1980 chronol.

CHRONOLOGY OF

KSC AND KSC-RELATED

EVENTS FOR

1980

SELECTED

By Ken Nail, Jr.

New World Services, Inc.

HISTORIAN/ARCHIVIST

January 3: Erik Quistgaard, former managing director of the Danish shipbuilding firm OLS, has been appointed director general of the European Space Agency effective May 15, succeeding Roy Gibson of the United Kingdom.

Quistgaard, 58, earlier served as general manager and director of Volvo in Sweden and spent three years with Chrysler Corp. in the U.S. He holds an M.S. degree in mechanical engineering from the Technical University of Copenhagen. (Defense/Space Business Daily, Vol. 108, No. 1, Thursday, January 3, 1980, p 4)

o Europe's first space launch vehicle, the Ariane, was successfully launched on its maiden flight Dec. 24 from the Guiana Space Center. The L01 vehicle, which carried a monitoring "capsule" rather than a satellite for the first mission, achieved an orbit very close to the planned 200/35,373 kilometer, 10.5 degree orbit planned. The European Space Agency and the French Space Agency termed the mission "a total success." The test flight is the first of four such flights planned to certify the vehicle. Two successes will be needed to declare the vehicle operational -- and ready to compete with the U.S. Space Shuttle for international space launches. The Ariane is comprised of three stages primarily built by France with some major German subsystems, all powered by liquid propellant French engines. France is providing 64 percent of the cost of the program; Germany, 20 percent. (Defense, Space Business Daily, Vol. 208, No. 1, Thursday, January 3, 1980, p 4)

o Retired Lt. Col. John A. "Shorty" Powers, NASA's former "voice of Mission Control" who made the term "A-OK" a global byword, was found dead Tuesday *night in his secluded home.*

Powers served as Air Force public affairs officer for the nation's space program from 1959 to June 1964.

Over radio and television he used the phrase "everything is A-OK" as he described early U.S. space flights. It became a popular comment for anything that was going smoothly.

He worked on six flights, including John Glenn's mission, the first time an American orbited Earth. (Sentinel Star, January 3, 1980)

January 4: From 370 proposals, NASA has selected 78 life science investigations as candidates for two life science-dedicated Spacelab missions to be conducted in mid-1983 and early 1985. About 15 to 20 investigations can be accommodated on each Spacelab mission. Only four of the selected experiments are from outside the U.S. -- two from the United Kingdom and one each from Australia and Switzerland. (Defense/Space Business Daily, Vol. 108, No. 2, Friday, January 4, 1980, p 11)

o While the Space Shuttle will gather its share of headlines for its first launch this year, five expendable missions will continue to carry communications and scientific satellites into orbit.

The first launch of the year will be an Atlas-Centaur carrying FLTSATCOM-C to geostationary orbit. The spacecraft will be the third in a series of military communications satellites designed to provide reliable communications between ships, planes and ground units worldwide. The January 17 launch date has a window of 8:26 to 9:45 p.m. FLTSATCOM-C will be launched from complex 36.

Scheduled during January or February is the first Solar Maximum Mission. SMM-A is a NASA-funded mission to study solar flares, sunspots and other activity on the sun's surface. All other planned missions for 1980 are on a reimbursable basis, with the spacecraft owners bearing costs for the rocket and launch operations. SMM-A will ride a Delta rocket.

In August, the Geostationary Operational Environmental Satellite-D is set for launch aboard a Delta vehicle. This weather satellite will collect meteorological and oceanographic data for the National Oceanic and Atmospheric Administration.

The first of two INTELSAT V launches for the year will take place in September on an Atlas Centaur. Both satellites are part of a new series of high-capacity spacecraft for the 102-member nations of the International Telecommunications Satellite Organization. The second satellite in the series is set for sometime in December.

Two possible call-up missions may be launched in 1980, depending on the needs of the users. They include a fourth FLTSATCOM and SBS-A, the first in a new series of communications satellites for Satellite Business Systems. SBS-A will be aboard a Delta. (Spaceport News, Vol. 19, No. 1, January 4, 1980, p 1)

o THE WHITE HOUSE

WASHINGTON

November 26, 1979

To Bob Frosch

As I indicated during your excellent program review, I fully support the Space Shuttle program because of its integral relationship to our national goals in science and exploration, commercial space utilization, defense, and technological leadership. I am confident you and your associates will manage this program carefully and well. I recognize we must expect and encounter setbacks in the course of a bold development effort of this kind, but I am certain they will be successfully overcome as they occur. I would like you to keep me up-to-date on the details of the Shuttle as we move toward its first flight next year.

Sincerely,
(original signed by Jimmy Carter)

Jimmy Carter

(Spaceport News, Vol. 19, No. 1, January 4, 1980, p 2)

January 7: The European Space Agency, which said last week that preliminary data continues to verify that the maiden Ariane launch Dec. 24 was a total success, is planning to conduct the second Ariane launch from the Guiana Space Center in May. Full data analysis of the Dec. 24 launch is underway and is expected to result in a further report by the end of this week. (Defense/Space Business Daily, Vol. 108, No. 3, Monday, January 7, 1980, p 18)

o The backup for Japan's Experimental Communications Satellite (ECS-B) is being readied for launch by a Japanese N-1 rocket next month from the Tanegashima Island launch base. ECS-A was launched by an N-1 from Tanegashima in February 1979, but failed to achieve final orbit because the booster third stage collided with the spacecraft shortly after the ECS was ejected. Objective of the program is to explore the higher frequency bands for use in satellite communications. Ford Aerospace & Communications Corp. is prime contractor for the satellite, with Mitsubishi Electric of

Japan as the major subcontractor, responsible for the power control unit, telemetry, command and antenna and attitude control electronics. (Defense/Space Business Daily, Vol. 108, No. 3, Monday, January 7, 1980, p 18)

January 9: Martin Marietta's Denver Division has received a $1 million NASA contract to design and build a solar wind analyzer instrument to be carried on one of the International Solar Polar Mission (ISPM) spacecraft to be launched towards the Sun by the Space Shuttle in 1983. (Defense/Space Business Daily, Vol. 108, No. 5, Wednesday, January 9, 1980, p 32)

o A planned five-day simulated flight of the Space Shuttle Orbiter Columbia was called off Monday night, when a simulated engine failed to function. The flight, part of the Orbiter Integration Test series at KSC, was rescheduled for late yesterday, with astronauts Joe Engle and Richard Truly in the cockpit. (Defense/Space Business Daily, Vol. 108, No. 5, Wednesday, January 9, 1980, p 32)

January 10: The General Accounting Office says that NASA should include higher inflation estimates and the cost of civil service salaries in its cost estimates for the Space Telescope.

"In order to make more informed decisions on whether to fund new projects and to evaluate the progress of ongoing projects, the Congress should be aware of the life-cycle costs involved," it said.

NASA has stated that it does not include the cost of civil service salaries in its estimates because it is given a certain manpower level, which is assigned to projects as they are authorized and appropriated. It points out that a certain level of personnel is necessary to oversee the nation's space effort, whatever the specific projects involved.

If these additional costs were included in the agency's estimates, GAO said, the development cost of the ST would be $186 million higher and the 17-year operational costs, $873 million higher. (Defense/Space Business Daily, Vol. 108, No. 6, Thursday, January 10, 1980, p 40)

o Stanley G. Rosen, a test manager with the Air Force Defense Satellite Communications system, told an ASS meeting in San Francisco that disposal in space of certain long-lived nuclear wastes "provides a feasible back-up

to terrestrial alternatives, and offers to substantially reduce long-term risks on Earth." At the same time, he said it may be better to hold off space disposal of nuclear wastes until the next century, after the "economic, political, legal and technological" issues have been solved. He said the program would be an "enormously complicated systems engineering task." NASA and DOE are conducting feasibility studies for nuclear waste disposal in space via the Space Shuttle and Orbit Transfer Vehicles and say the concept continues to look feasible. (Defense/Space Business Daily, Vol. 108, No. 6, Thursday, January 10, 1980, p 42)

January 11: NASA Tuesday successfully conducted another simulated flight of the Space Shuttle Columbia in the Orbiter Processing Facility at the Kennedy Space Center. The 52-minute simulated flight included 46 minutes to reach final orbit and 6 minutes to checkout and place the Orbiter into a cruise mode to end the test. Astronauts Joe Engle and Richard Truly, the backup crew for the first Shuttle flight, were at the Columbia's controls for the test. (Defense/Space Business Daily, Vol. 108, No. 7, Friday, January 11, 1980, p 47)

o Over 1.2 million visitors took guided bus tours of NASA's John F. Kennedy Space Center and the adjacent Cape Canaveral Air Force Station in 1979, marking the third busiest year since the guided bus tours were initiated in 1966.

The 1,282,702 total was only 0.6 of one per cent lower than the 1978 figure of 1,289,653, the second busiest year. Tour bus patronage peaked at 1,389,049 in 1972, the year of the Apollo 16 and 17 missions which closed the nations manned lunar exploration program. (NASA News Release No. KSC 1-80, January 11, 1980)

January 13: Sorry, America: They aren't taking any passenger reservations for the Space Shuttle.

Ever since Dec. 30, when Parade magazine, a Sunday supplement distributed with many newspapers, published a story about "passenger lines forming" for the shuttle, NASA officials have been receiving letters from across the country asking for seat reservations.

Financing a personal trip to outer space would be a problem, several hopeful passengers admitted. One who claimed to be "short of cash" asked to be allowed to pay $5 a month, and a thirdgrader said, "I know it is over my allowance. But I think my parents will pay. I love space."

The money is being returned, NASA officials said, along with form letters explaining that the "place in line" for the "get-away special" discussed in the article is only for equipment for scientific experiments, not people. NASA has no plans to offer Shuttle seats to paying passengers, they said. (Today, January 13, 1980, p 15A)

January 14: The new Soyuz T improves on many system capabilities earlier found lacking by U.S. analysts. Highlights:

Digital computer avionics capability as opposed to only analog sequencers.

Use of pressure-fed main engines as opposed to turbine-driven engines.

Use of solar panels instead of expendable batteries on high-altitude missions.

Likely increase in maneuvering velocity changes over those available earlier, which seriously limited maneuvering.

Higher telemetry data rate to the ground as compared with little or no telemetry for some earlier on-board systems.

Use of microelectronics and advanced lightweight materials as opposed to early 1960s technology in use in these areas until Soyuz T.

Improved earth touchdown system to soften landings. (Aviation Week & Space Technology, Vol. 112, No. 2, p 57)

o The third Navy FLTSATCOM satellite is scheduled for launch Thursday, Jan. 17, from Cape Canaveral. An Atlas-Centaur will place the 4100-pound TRW-built spacecraft into a geosynchronous near-equatorial orbit, where it will provide coverage from Africa to Australia and New Zealand. [FLTSATCOM-3 is about 800 pounds heavier than other satellites launched into synchronous orbit by the General Dynamics-built Atlas-Centaur.] FLTSATCOM-1, operating since February 1978, provides service from Midway Island in the Pacific, across the continental U.S. to the Azores in the Atlantic; FLTSATCOM-2, launched last May, provides coverage from the mid-U.S. across the Atlantic to the Indian Ocean. The new satellite has a design life of five years.

It provides nine 25 KHz channels and twelve 5 KHz channels to serve small mobile users such as ships, aircraft and mobile ground units; a 25 KHz fleet broadcast channel, and a 500 KHz DOD channel. (Defense/Space Business Daily, Vol. 108, No. 8, Monday, January 14, 1980, p 52)

- The Space Shuttle Orbiter Columbia was put through a third successful simulated launch Thursday night at Kennedy Space Center, after two days of delays. A fourth flight was slated Friday afternoon. (Defense/Space Business Daily, Vol. 108, No. 8, Monday, January 14, 1980, p 52)

- Widespread modification to space shuttle flight engine welds, which were made with welding rod from a suspect lot, apparently will not be necessary, according to Rocketdyne shuttle main engine officials, who hope to have the modified engines reinstalled on Orbiter 102 by mid-March.

  There has been concern over the possibility of having to strengthen a large number of flight engine welds (AW&ST December 10, 1979, p. 20), but Rocketdyne officials said it now appears weld modifications will be limited to a section of a hydrogen line located near the base of the engine nozzles. (Aviation Week & Space Technology, Vol, 112, No. 2, January 14, 1980, p 21)

- Soviet Union said last week its new Soyuz T spacecraft will remain docked to the Salyut 6 space station for several months.

  Soyuz T mission is a test of extensive system modifications, and its flight duration will provide an indication of how long such vehicles could support a manned space station crew. Earlier Soyuz design was limited to about 90 days in space.

  The Soviets recently launched Cosmos 1,149. Soviets' first launch of 1980 occurred January 9 and involved a photo reconnaissance spacecraft placed in a 414 x 208-km. (257 x 129-mi.) orbit inclined 72.9 deg. (Aviation Week & Space Technology, Vol, 112, No. 2, January 14, 1980, p 21)

January 15: The Soviet Union launched a Molniya 1 series communications satellite from Plesetsk on Friday, January 11, putting it into an orbit of 478/40,830 kilometers, 62.8 degrees, 12 hours, 17 minutes. It was the second Soviet space mission this year. (Defense/Space Business Daily, Vol. 108, No. 9, Tuesday, January 15, 1980, p 63)

- The fifth and final simulation flight of the Space Shuttle Orbiter Columbia in the Orbiter Integration Test series -- and the first to include reentry and landing -- began last night at Kennedy Space Center and is scheduled to conclude tomorrow morning. The fourth flight test was successfully conducted late Friday night and included the first simulated emergency -- the shutdown of one of the three fuel cells that provide electricity to the orbiter. (Defense/Space Business Daily, Vol. 108, No. 9, Tuesday, January 15, 1980, p 64)

- The Denver Division of Martin Marietta Aerospace has been selected over General Electric and McDonnell Douglas for a $2.1 million NASA-Johnson contract to design and fabricate the kit that will be used if necessary to repair in orbit the thermal protection tiles of the Space Shuttle orbiter. (Defense/Space Business Daily, Vol. 108, No. 9, Tuesday, January 15, 1980, p 64)

- The Peoples Republic of China is apparently well along in the development of an astronaut training program. A report from Shanghai, accompanied by a photograph of an astronaut in a small simulated spacecraft, also displayed the photograph of "a young dog that was sent into space by our country" as one of three flights to "recuperate experiments." The three flights were made on December 2, 1975, December 18, 1976 and January 30, 1978. The report says all Chinese astronauts are chosen from pilots. No further details of the program were given. (Defense/Space Business Daily, Vol. 108, No. 9, Tuesday, January 15, 1980, p 64)

- The launching of the third Defense Department/TRW Defense and Space Systems Group FLTSATCOM (Fleet Satellite Communications) satellite, originally scheduled for Dec. 4, 1979, has been rescheduled for launch on Jan. 17. A General Dynamics Atlas Centaur will boost the spacecraft, developed by the Air Force Space Division, into orbit from Cape Kennedy. Its final position will be a stationary orbit over the Atlantic. The flight was delayed in December because of technical problems with the Atlas first stage. (Defense/Space Business Daily, Vol. 108, No. 9, Tuesday, January 15, 1980, p 64)

January 16: "The space program today is on the verge of a dramatic transition from a pioneering capability and event orientation to one of routine space operations that emphasize activities designed specifically to improve the quality and security of life for all people on this planet. We are, in effect, on the threshold of coming of age in space.

"The key element here is the reusuable Space Shuttle. This remarkable flying machine will be capable of carrying heavier and larger payloads into low Earth orbit than the expendable rockets currently being used, and at a greatly reduced cost. Moreover, it allows us for the first time to return large payloads to Earth. Thus, we will be able to take full advantage of the special properties of outer space - weightlessness, hard vacuum, limitless energy and high vantage point - all essential ingredients for the full industrial development of the space frontier. The industrialization of space, I believe, is a foregone conclusion. It's just a matter of time.

The key challenge facing NASA, and the Kennedy Space Center in particular, will be in coping with the demands of industry, as well as those of scientific and military circles, to get into space. the logistical prroblems will be immense - and welcome." (Today,January 16, 1980; guest columnist Richard Smith, Director, Kennedy Space Center)

January 17: [The following comments on the European Space Agency's Ariane launch vehicle, which successfully flew its maiden flight last month, are excerpted from the European Community's "Europe" magazine.]

"... When Ariane in its various versions roars into test flight from France's space center near Kourou, French Guiana, it could place the European aerospace industry on a competitive footing with the United States in supplying a growing worldwide demand for space launch facilities and services. Given the successful testing of Ariane, Europe also will be in a position to challenge U. S. dominance in the related and equally lucrative market for selling civilian and military satellites, which within less than a decade is expected to more than quintuple -- to well over $1 billion, according to both West European and U. S. space authorities.

"Ariane is spectacular not only for the technology involved. It also means credibility for markets and everything that goes with it, mainly satellites," says ESA's Raymore Orye, a Belgian, who heads the project. "It's greatest significance is new independence we gain from the United States."

"...The projected cost of an Ariane launch is about $25 million. We will arrange shots for those around the world who are interested -- it should be a lucrative, new source of launch power for countries with satellite ambitions," explains an ESA official...". (Defense/Space Business Daily, Vol. 108, No. 11, Thursday, January 17, 1980, p 75)

January 18: The Space Shuttle Orbiter Columbia successfully completed the descent and landing position of its fifth simulated space mission at KSC yesterday. The descent began at 10 AM and the landing was successfully made at 10:59. However, because the hydraulics were not activated for yesterday's test, NASA will repeat the descent and landing simulation today with the hydraulics in operation. (Defense/Space Business Daily, Vol. 108, No. 12, Friday, January 18, 1980, p 86)

o A multi-purpose series of tests with the Orbiter Columbia were resumed January 6 after a successful beginning before the holidays.

Following the fifth successful mock launch January 14, George Page, director of Shuttle Operations said, "We are very pleased with the tests so far. It has been a very beneficial exercise and one that has provided members of the launch team with some very valuable experience."

"With the tests we have completed so far," Page noted, "we are pleased with how compatible the orbiter flight hardware is with our Launch Processing System and ground support equipment." He also cited the OIT test team. "They put in a lot of long hours under some very difficult conditions. Everybody involved in these tests has put forth a tremendous effort."

Another group whose invaluable assistance went almost unnoticed during the tests was the other astronauts assigned to provide support during orbiter checkout activities. Karol "Bo" Bobko, Loren Shriver, Dick Scobee, Fred Gregory and newly-assigned Ellison Onizuka spent many hours in the orbiter cockpit during the long and tedious pre-test preparation and recycling periods.

At press time on January 15, the five-part test series was scheduled to end Wednesday with the Orbiter Columbia completing its extensive 54-hour simulated mission including in-orbit operations and a reentry/landing profile.

Prime crewmen for the first actual Space Shuttle launch, John Young and Robert Crippen, and their backups, Joe Engle and Richard Truly were taking turns at the controls of the orbiter during various portions of the two-day mission. January 16, Young and Crippen were to enter the orbiter dressed in their pressurized flight suits and man controls during the mock return from space.

The first ascent run, after the holiday with astronauts Engle and Truly aboard, was launched at 11:30 p.m. January 8 and completed a very smooth flight of about an hour before the simulation was terminated.

For the second ascent run, the orbiter's three electricity-producing fuel cells were used to provide the orbiter with power. Problems with one of the fuel cells, and a failure of two of Columbia's five on-board flight computers, delayed the second liftoff until 11 p.m. January 10. Young and Crippen piloted the spacecraft into orbit and about 10 hours of orbital operations with the fuel cells were conducted.

Countdown for the third simulated flight went much more smoothly, with only one delay to solve a minor equipment problem. The mock liftoff came at 11:30 p.m. January 11 with Young and Crippen at the controls. The No. 1 fuel cell was turned off for the run, giving the astronauts and ground support crews some experience in handling flight problems.

Astronauts Truly and Engle boarded the orbiter for the fourth ascent run, which following a problem-free countdown, and successfully got underway at 10 p.m. January 13. Again during the launch phase, an electrical panel on-board the Columbia was intentionally failed, but the induced emergency did not hamper the flight.

The final mock mission was launched at 2 a.m. January 14. Astronauts Engle and Truly put the Columbia into a planned orbit to begin two-days of orbital operations, including opening and closing of the payload bay doors and extending the radiators used to cool shuttle systems. (Spaceport News, Vol. 1, No. 2, January 18, 1980, p 1&4)

o Henry C. Paul has been appointed Deputy director of Design Engineering. Prior to this appointment, Paul was Director, Electronic Engineering.

He joined the Kennedy Space Center after retiring from the Air Force as a Lieutenant Colonel in 1967.

At KSC, Paul served as Chief, Checkout Automation and Programming Office, Launch Vehicle Operations, until August 1972 when he was made Technical Manager for development and implementation of a Launch Processing System. He assumed his most recent position as Electronic Engineering Director in October 1976.

Paul was born in Beaufort, S.C. He and his wife Judy live in Cocoa Beach and have four children. (Spaceport News, Vol. 1, No. 2, January 18, 1980, p 3)

o According to Wally Boggs, Design Engineering's Energy Project Coordinator, the Center is looking into the feasibility of mass producing ethyl alcohol which could be used directly or converted into some other fuel. Although still very much on the drawing board, small sample plots of various vegetation, which could be converted into fuel, are already being grown on the Center.

Planned for 1981 is the construction of an incinerator to burn the 16 tons of paper waste created daily at KSC. The incinerator, which will include a heat-recovery unit to supply the Central Heating plant with added energy, will cost $800,000 and will pay for itself in just two years. (Spaceport News, Vol. 1, No. 2, January 18, 1980, p 3)

January 21: Kennedy Space Center has completed stacking the McDonnell Douglas/Thiokol solid rocket boosters for the first space shuttle mission, a process that was delayed until National Aeronautics and Space Administration and contractor engineers solved technical problems with the 3.1-million-lb-thrust stages.

Primary problems encountered involved propellant slumping that forced Thiokol motor segments as much as 1.3 in. out of round and some discontinuities in the propellants that had to be repaired.

When NASA initially attempted to stack the solids, measurements of the center segments revealed the out-of-round condition, forcing a delay in the operation until the problem was solved.

Other problems that slowed stacking involved the propellants themselves. When one segment was placed on the booster stack on the mobile launcher by United Space Booster, Inc., contract personnel, inspectors found that a repair to the propellant gain made by Thiokol prior to shipment had apparently cured improperly, according to Alfred N. Wiley, Kennedy's chief of solid rocket booster operations.

That problem was repaired in the Vehicle Assembly Building.

On another segment, a crack was found in the propellant grain, and that unit was moved from the Vehicle Assembly Building to an isolated safe area, where the crack was smoothed by a standard repair procedure.

Final solid rocket booster stacking was completed the week of Jan. 7 (Aviation Week & Space Technology, Vol. 112, No. 3, p 71).

- The Defense Department's FLTSATCOM III communications satellite was successfully placed in an initial transfer orbit after its launch at 8:26 PM EST Thursday, Jan. 17, from Cape Kennedy by a General Dynamics Atlas Centaur. The Air Force Space Division/TRW Defense and Space Systems Group satellite was scheduled to be boosted into its stationary orbit at 23 degrees W. longitude over the Atlantic with a kick stage firing Saturday at 8:00 PM. The satellite will replace FLTSATCOM II, which will be moved over an 80 day period to a position of 75 degrees E. longitude over the Indian Ocean. FLTSATCOM I is at 100 degrees W. longitude over the United States. (Defense/Space Business Daily, Vol. 108, No. 13, Monday, January 21, 1980, p 89)

- The launch schedule for the European Space Agency's Ariane launch vehicle, which successfully flew its maiden mission last month, is as follows:

Flight	Date	Payload	Customer	Mission
LO-2	5/80	CAT	ESA	technology capsule
		Firewheel	Max Planck	study magnetosphere
		Oscar-9	Amsat	amateur radio set
LO-3	9/80	CAT	ESA	technology capsule
		Meteosat 2	ESA	metsat
		Apple	ISRO	experimental satcom
LO-4	12/80	CAT	ESA	technology capsule
		Marecs A	ESA	maritime satcom
		Operational Missions		
L-5	4/81	Marecs B	ESA	maritime satcom
		Sirio 2	ESA	disseminate weather data
L-6	7/81	Open	-	-
L-7	10/81	ECS 1	ESA	communications
L-8	12/81	Intelsat V F-6*	Intelsat	communications
L-9	2/82	Exosat*	ESA	astronomy (x-rays)
L-10	4/82	Intelsat V F-7**	Intelsat	communications
L-11	6/82	Westar**	WU	domsat
L-12	8/82	Intelsat V F-8***	Intelsat	communications
		Anik D***	Canada	communications
L-13	10/82	ECS 2	ESA	communications
		Arabsat 1***		

* Launch slots could be exchanged.
** Launch slots could be exchanged.
*** To be confirmed.

Later Ariane launches will include ESA's ECS 3 and ECS 4; France's SPOT 1, France's Telecom 1A and 1D; the Franco-Germany Direct TV 1A, 1F, 2A and 2F; ESA's Meteosat 3, and ESA's Marecs C. (Defense/Space Business Daily, Vol. 108, No. 13, Monday, January 21, 1980, pp 90)

- Former Apollo 11 astronaut Michael Collins, who has been undersecretary of the Smithsonian Institution since April 1978, has joined LTV's Vought Corp. as vice president in charge of field operations.

  Collins will be responsible for Vought's operations in Los Angeles and San Diego, Calif.; Dayton, Ohio; Fort Walton Beach, Fla.; Hampton, Va.; Huntsville, Ala., and Washington, D.C. (Defense/Space Business Daily, Vol. 108, No. 13, Monday, January 21, 1980, p 91-92)

- In order to keep industry apprised of the current state of the requirements for the Power Extension Package that is planned for the Space Shuttle, NASA's Johnson Space Center is releasing the PEP system specifications to interested companies. No RFP or planned RFP is involved. NASA is planning to use the solar array being developed for the Solar Electric Propulsion Stage as the generator element for the PEP, a lightweight mission kit which could extend the Shuttle's stay-time from 7 days to 14-18 days. (Defense/ Space Business Daily, Vol. 108, No. 13, Monday, January 21, 1980, p 92)

- Operational oceanic satellite system development now approved by the Carter Administration for the National Aeronautics and Space Administration's Fiscal 1981 budget will lead to hundreds of millions of dollars in new business for hardware and data products and will open to commercial and scientific users an entirely new dimension in the ability to monitor earth from space.

  NASA also has received formal approval to request Fiscal 1981 new start funding for a gamma ray observatory that will be one of the heaviest unmanned scientific spacecraft ever launched and provide information that will help explain the mechanisms behind some of the most intriguing objects in space, such as pulsars and black holes.

  Additional key feature of NASA's Fiscal 1981 budget will be a $300-million supplemental request for Fiscal 1980 space shuttle funding and $700-800 million in shuttle funding for Fiscal 1981 beyond the amount NASA believed a year ago it would require in this budget to maintain shuttle development and production.

  The Administration cut both the shuttle power extension and solar electric propulsion from the NASA Fiscal 1981 request, a move that will delay expanded space shuttle utilization and will kill a single spacecraft flyby of Halley's comet and rendezvous with the Comet Tempel 2.

NASA will head a tri-agency management structure, including the Defense Dept. and National Oceanic and Atmospheric Administration, which recently was given responsibility for day-to-day operational remote sensing control.

Funding for the NOSS development will be roughly 25% each for NOAA and NASA and 50% for the Defense Dept. with a total of $10-15 million planned for NOSS in Fiscal 1981. (Aviation Week and Space Technology, Vol. 112, No. 3, January 21, 1980, p 51)

January 22: NASA has decided to extend the operation of the HEAO-2 spacecraft because the mission has provided "significant results" and its instruments continue to meet or exceed expectations. The spacecraft, carrying the largest x-ray telescope ever built, was launched in November 1978 on a planned 11-month mission to survey the sky for x-ray, gamma-ray and cosmic-ray sources. (Defense/Space Business Daily, Vol. 108, No. 14, Tuesday, January 22, 1980, p 98)

o NASA Administrator Dr. Robert Frosch said last week that he is pleased with the progress being made on the Space Shuttle development program.

He called the completion last week of the simulated Shuttle orbital flight series "a major milestone which brings us significantly closer" to making the first Shuttle flight. "We are very pleased and somewhat surprised it went as rapidly and quickly as it did."

The NASA administrator was quoted as saying that the flight could slip to 1981. Each day of delay in the program is costing an estimated $4-5 million per day. The flight was originally scheduled for June 1979, and is now officially scheduled for June 1980. (Defense/Space Business Daily, Vol. 108, No. 14, Tuesday, January 22, 1980, p 96)

o The simulated series of flight tests of the Space Shuttle Orbiter Columbia was successfully concluded Friday morning at Kennedy Space Center, and the Shuttle test director pronounced the overall program "a total success."

The Orbiter Integrated Test (OIT) series, designed to demonstrate selected orbiter hardware and software subsystem operations during a mission timeline, included five separate launch and ascent profiles, on orbit operations and two entry missions. The second descent and landing mission was ordered for last Friday after the simulated hydraulics (speed brakes) were not employed in the first test because of computer problems.

Veteran astronaut John Young, who participated in the simulated tests and who will pilot the first Shuttle flight, said his "level of confidence has gone up because things worked the way the program is supposed to work and the spacecraft operated like a champ."

Robert Crippen, the other member of the primary Shuttle crew who also participated in the OIT, said, "We are anxious to go, but were anxious that everything be right. The Shuttle is really a very spectacular machine which will do a lot for this country." (Defense/Space Business Daily, Vol. 108, No. 14, Tuesday, January 22, 1980, p 96)

- The Senate Commerce Committee wants to know if the "Moon Treaty" recently passed by the U.N. General Assembly could hinder the ability of the United States to utilize the resources of the Moon and other extraterrestrial bodies if it chooses to do so.

To that end it has ordered a study by the Congressional Office of Technology Assessment on the impact of the treaty ["Agreement Governing the Activities of the States on the Moon and Other Celestial Bodies"] on the capability of the U.S. to exploit extraterrestial materials.

The "Moon Treaty" declares that the natural resources of the Moon and other celestial bodies "are the common heritage of mankind." It calls for nations that sign the treaty to undertake, as the exploitation of extraterrestrial resources is about to become feasible, to convene a conference to negotiate an international regime to govern the exploitation of those resources.

The U.S. position is that it can undertake experimental missions and then pilot operations within the context of the treaty, with sharing of space resources done on an "equitable" -- not equal -- basis. (Defense/Space Business Daily, Vol. 108, No. 14, Tuesday, January 22, 1980, p 100)

January 23: Inadequate adhesion of an excessive number of Thermal Protection System insulation tiles on the Space Shuttle Orbiter Columbia is causing increasing concern for NASA officials and is expected to further delay the first launch of the Shuttle.

Because of the high failure rate of tiles during pull-testing, which is testing the ability of the tiles to stay on the Shuttle at pressures somewhat higher than expected during an actual mission, more tiles have been removed from the Columbia than added during the last two months.

Apprehension over the adhesiveness of the tiles began after the Columbia arrived at Kennedy Space center last June after a disastrous airlift with some dummy tiles installed on the orbiter, which resulted in damage to some of the actual tiles. Follow-on inspections disclosed the adhesion problem.

As a result NASA ordered the pull testing to certify the tiles and, then, ordered the development of a system that would allow the astronauts to repair damaged tiles in space. The repair system, however, is not scheduled to be used on the initial flight, because the pressures the tiles will be subjected to on that mission will be less than later flights.

Another factor which some suggest could enter into the schedule is the presidential election in November. The Administration might not want to fly the mission just before the election, because of the possible adverse consequences of a failure. NASA naturally would prefer any extra time it could get to further insure against anything going wrong. (Defense/Space Business Daily, Vol. 108, No. 15, Wednesday, January 23, 1980, p 102)

o Lee R. Scherer, former NASA director of Kennedy Space Center, has been elected president of the ROVAC Corp. effective immediately.

Prior to his appointment, Scherer worked for a short time as a consultant to the Rockledge-based firm. (TODAY, Wednesday, January 23, 1980)

January 24: The two congressional subcommittees responsible for authorizing funds for NASA start this session of Congress with new staff chiefs.

Ronald M. Konkel, formerly deputy chief of the Energy and Science Division of the White House Office of Management Division, has been named staff counsel for the Subcommittee on Science, Technology and Space of the Senate

Commerce Committee, and Darrell R. Branscome has been promoted from deputy staff director to staff director of the Subcommittee on Space Science and Applications, House Committee on Science and Technology, which is responsible for all but the aeronautics portion of the NASA authorization. He has been a member of the subcommittee staff since April 1975.

Konkel succeeds Dr. John Stewart, who has joined the TVA as manager of plans and budget.

Branscome takes over from long-time subcommittee staff director James E. Wilson, who has joined McDonnell Douglas Corp. as Washington representative-legislative liason. (Defense/Space Business Daily, Vol. 108, No. 16, Thursday, January 24, 1980, p 111)

- The Landsat-2 Earth Resources Satellite, launched in June 1975, has ceased operation due to wear-induced failure on its primary flight control system. NASA has tried over the last two months to control the spacecraft with backup systems but has abandoned the effort and shut down the satellite, which had a design life of only one year. The shutdown of Landsat-2 leaves NASA with only one operating Earth Resources Satellite, Landsat-3, and one of the two tape recorders and the thermal band of the Multi-Spectral Scanner on that spacecraft are inoperative. NASA is hoping that Landsat-3 will continue to operate until the fourth Landsat (Landsat-D) is launched in the fall of 1981. (Defense/Space Business Daily, Vol. 108, No. 16, Thursday, January 24, 1980, p 111)

- Iveys Steel Erectors Inc., of Merritt Island, Florida, has won a contract to perform extensive modifications to the second of three Mobile Launcher Platforms here.

  The $482,666 fixed price contract is the result of a total small business, labor surplus area set-aside. The contract allows for a 180 calendar day period of performance, and all work will be accomplished at Kennedy Space Center. (NASA News Release No. 6-80, January 24, 1980)

- Minnesota, Mining and Manufacturing Co., of St. Paul, Minn., has won a $32,196 contract for NASA's John F. Kennedy Space Center for the purchase of thermal heat barrier insulation tape. (NASA News Release No. 7-80, January 24, 1980)

January 25: President Carter's science adviser, Dr. Frank Press, saidyesterday in Peking that the United States may launch a broadcast communications satellite for the People's Republic of China in 3-4 years. Press, heading a 14-member delegation discussing U.S.-Chinese scientific and technological cooperation, said the launching of the satellite had been discussed with the Chinese. "I think the Chinese soon may be talking to American manufacturers about this," he said. At the conclusion of a three-day meeting, agreements on joint research and cooperation in several areas were signed. The delegation also discussed the Landsat receiving station which was offered the Chinese by Defense Secretary Harold Brown earlier this month. (Defense/Space Business Daily, Vol. 108, No. 17, Friday, January 25, 1980, p 115)

January 28:

UPCOMING LAUNCHES

MISSION	EXPENDABLE VEHICLE	PAD	DATE
SMM (1)	DELTA	17A	February
INTELSAT V F-1 (2)	ATLAS CENTAUR	36B	September
GOES-B (3)	DELTA	17A	September
SBS-A (4)	DELTA	17A	October
FLTSATCOM-D (5)	ATLAS CENTAUR	36B	November
INTELSAT V F-2	ATLAS CENTAUR	36B	December
OFT-1 (6)	SPACE SHUTTLE	39A	No earlier than March' 81

KEY
(1) Solar Maximum Mission, NASA science mission
(2) Commercial communications satellite
(3) Geostationary Operational Environmental Satellite
(4) Satellite Business Systems communications satellite
(5) FLeet SATellite COMmunications spacecraft, Navy
(6) Orbital Flight Test, (Manned)

(NASA News Release 9-80, January 1980)

o The Bradfield Comet approached within 25 million miles of the Earth on Jan. 22. Observation of the comet began Jan. 11 by the European Space Agency's tracking station near Madrid. The agency said that ultraviolet measurements of the comet have been made with the International Ultraviolet Explorer (IUE) spacecraft, which will provide additional data on the composition of the comet's atmosphere. The comet is expected to be visible to the naked eye in the northern hemisphere by the end of this month. (Defense/Space Business Daily, Vol. 108, No. 18, Monday, January 28, 1980, p 127)

- A first-of-its-kind joint endeavor arrangement between NASA and industry to advance the development of materials processing in space has been signed by the agency and McDonnell Douglas. Under the arrangement, McDonnell and a pharmaceutical company will carry out R&D to develop a method (continuous-flow electrophoresis) to process biological material in space to be used in medical applications. The substance cannot be produced in the quantity and purity needed on Earth. NASA said that no funds will be transferred under the joint endeavor and it is presumed that NASA will provide no-cost or reduced cost transportation into space for the experiment. (Defense/Space Business Daily, Vol. 108, No. 18, Monday, January 28, 1980, p 128)

- Space shuttle increase of nearly $1 billion has pushed the National Aeronautics and Space Administration's Fiscal 1981 budget request to $5.736 billion, a level $1.14 billion higher than Office of Management and Budget's projection last year on what the agency should receive in Fiscal 1981. A $300-million Fiscal 1980 shuttle supplemental request also is included in the new budget.

  NASA's Fiscal 1981 budget being submitted to Congress this week is the second highest in dollar figures ever requested by the agency, exceeded only by the Fiscal 1966 $5.933-billion obtained at the height of the Apollo program buildup. Purchasing power of the Fiscal 1981 money is far less than in 1966, however. (Aviation Week & Space Technology, Vol. 112, No. 3, January 28, 1980, p 21)

- National Aeronautics and Space Administration/General Electric Landsat 2 spacecraft has been retired from service because of continuing momentum wheel problems that struck the spacecraft in late 1979. (Aviation Week & Space Technology, Vol. 112, No. 3, January 28, 1980, p 21)

- Development of space launch vehicles and a move toward military payloads for Japan's National Space Development Agency is a priority in Japan. The satellites planned for orbit would be for command, control, communication and meterological applications.

  "The Japanese plan to take on many more military space programs on their own, even if the costs are significantly higher than participation with the U.S. space effort," one official here said. He added, "There is a big move in Japan into space, especially in developing its own boosters."

Japan already has the rights to manufacture a version of the McDonnell Douglas Delta vehicle and has been doing so for some time with the Rocketdyne MB3 booster propulsion engine. The complete second stage is built here, and the rocket motor and spin table for the third stage are bought from McDonnell Douglas and assembled here by Mitsubishi as prime contractor. (Aviation Weekly & Space Technology, Vol. 112, No. 3, January 28, 1980, p 50)

January 29: To cover the increasing costs of Space Shuttle development and production, President Carter is requesting a $5.737 billion authorization for NASA in FY '81, an increase of $813 million or 16.5 percent over the budget approved for FY '80 by Congress. In addition, he is asking Congress to approve $300 million in supplemental funding for FY '80 to cover rising Shuttle costs, with approval of those funds urged by June 1. Even with the increased funding, the Shuttle schedule is slipping because of very difficult tile insulation problem. The FY '81 budget provides funds to initiate the GRO and NOSS, and agency runout estimates would give NASA $172 million for new starts in FY '82 and $460 million in FY '83. (Defense/ Space Business Daily, Vol. 108, No. 19, Tuesday, January 29, 1980, p 130)

o President Carter, as he promised NASA last spring, has given full budget support to the Space Shuttle program in its moment of need, asking Congress for a $5.737 billion FY '81 authorization for NASA, an increase of 165 percent over the $4.924 billion FY '80 NASA budget approved by Congress.

Unlike the President's FY '80 budget request for NASA which contained no new starts, the FY '81 budget includes funding for the following two new starts:

1) Gamma Ray Observatory. Runout Cost: $210-$270 Million. NASA is requesting $19.1 million in FY '81 to initiate development of the GRO, an Earth-orbiting spacecraft carrying instruments to detect a variety of gamma rays, including very high energy gamma rays from pulsars, nuclear gamma rays and gamma ray bursts.

2) National Oceanic Satellite System. Runout Cost: $645-$790 Million. A joint program of NASA/NOAA and the Defense Department, the two-satellite NOSS will provide a "limited operational demonstration" of the feasibility of providing continuous observation of the Earth's ocean surface winds, sea state, surface water temperature, wave height, ice and other geophysical measurements. Monitoring is to be provided from polar orbit in near real time and under all weather conditions.

Asked by Defense/Space Daily about the status of the Shuttle's thermal insulation tiles and the schedule for the First Manned Orbital Flight (FMOF), Frosch said there is a "reasonably good chance" that FMOF can be made by the end of 1980, but acknowledges that it is possible that it will slip into 1981. (Defense/Space Business Daily, Vol. 108, No. 19, Tuesday, January 29, 1980, p 137-140)

- One factor which made NASA's proposed 1981 budge soar to over $5.7 billion is reflected in the concern space agency officials have over the "mechanical integrity of the (Space Shuttle's heat protection) tiles."

  Originally the tile project was estimated to run about $50 million, but now several space agency officials say some new estimates show the costs will run well over $75 million. (Today, January 29, 1980)

- NASA will strike out if it risks asking Congress a fourth time for extra funds for the Space Shuttle, the chairman of the House Science and Technology Committee warns.

  "I expect this to be the last one," Rep. Don Fuqua, D-Fla., said of NASA's new request for $300 million in supplemental Shuttle funds. "That is my serious hope and desire--I started to say they wouldn't get it from me, and I'm getting to the point where I'd be willing to say so. They've had three strikes." (Today, January 29, 1980)

January 30: Chairman Don Fuqua (D-Fla.) of the House Science & Technology Committee told NASA officials yesterday at the start of the committee's hearings on the FY '81 NASA budget request that he considers the $5.737 billion agency request "basically sound."

He endorsed the new starts on the Gamma Ray Observatory and National Oceanic Satellite System projects and praised the Carter Administration for proceeding with new starts while funding the Shuttle through supplemental appropriations. (Defense/Space Business Daily, Vol. 108, No. 20, Wednesday, January 30, 1980, p 142)

- The Air Force has completed a major study of the potential military need for man in space and has concluded that the need will be greater than it thought a few years ago, NASA Administrator Robert Frosch told the House Science & Technology Committee yesterday.

Reflecting on the importance of the Space Shuttle for America's national defense needs, Frosch said that the Air Force has concluded that it will need to increase its manned presence in space for both research and development needs and for operational uses where the work is adjusted as the situation requires. An increase in the number of military astronauts is planned. (Defense/Space Business Daily, Vol. 108, No. 20, Wednesday, January 30, 1980, p 144)

o BAMSI Incorporated of Titusville has been selected as the winner of a one-year contract to supply keypunch services at NASA's John F. Kennedy Space Center.

The company will supply trained personnel to operate keypunch and key-verification services for the Space Center.

The $286,959 fixed price contract is one set aside for small business firms. The contract extends from February 1, 1980, through January 31, 1981. All work will be performed at KSC. (NASA News Release No. 10-80, January 30, 1980)

January 31: A scheduled cluster firing of three Space Shuttle main engines was postponed Wednesday when technicans at NASA's National Space Technology Laboratories in Bay St. Louis, Miss., discovered a faulty valve in a portion of the test facility.

The newest cluster firing is designed to demonstrate the reliability of the Shuttle's main engines as well as how they perform when connected to other major Shuttle flight components.

The firing is scheduled for 520 seconds--the same amount of time the engines must operate during an actual launch and flight of the reusable Shuttle system.

The December test marked the first time the Rocketdyne team was able to demonstrate that the engines, when fired in unison, could operate for that length of time.

Some previous cluster firings, which also were run last year, ended in failure when the engines were not able to operate for the required time. (Today, January 31, 1980)

- NASA has signed a contract valued at $183,960,000 with the European Space Agency for the manufacture and delivery in 1984 of the second Spacelab flight unit. The Spacelab is built by the ERNO industrial facility in Bremen, Germany, as prime contractor, and 26 subcontractors. The first Spacelab was designed and is being built by ESA for an early operational flight of the Space Shuttle. It has an estimated cost exceeding $850 million. (Defense/Space Business Daily, Vol. 108, No. 21, Thursday, January 31, 1980, p 154)

- During the past week the Soviet Union has launched three military Cosmos satellites from the flight center at Plesetsk. Cosmos 1152 was launched on Jan. 24 into a high-resolution, long-duration reconnaissance/surveillance orbit of 181/370 kilometers, 67.1 degrees, 89.7 minutes. Cosmos 1153 was launched the following day, Jan. 25, into an orbit of 983/1031 kilometers, 105 minutes, for a navigation mission. The latest, Cosmos 1154, was launched yesterday, Jan. 30, and put into an orbit of 634/671 kilometers, 81.3 degrees, 97.3 minutes for a electronic monitoring mission. (Defense/Space Business Daily, Vol. 108, No. 21, Thursday, January 31, 1980, p 154)

- The first flight of the Space Shuttle will not be made before November 1980, and probably will occur between November and the end of March 1981, NASA Administrator Dr. Robert A. Frosch told the House Science & Technology Committee Tuesday.

  The pacing item in the launch schedule, he said, is the installation of the insulation tiles on the Orbiter Columbia and the certification of their ability to safely withstand the forces to which they will be subjected in flight. He admitted that the previous engineering model for the tile system "was wrong," but that the agency now understands what is needed. However, he said he is less sure of what the agency will have to do in the way of testing to provide full assurance of safety.

  Among other things, the agency has now decided to remove all tiles that cannot be pull-tested and test them off the Shuttle.

  Frosch said he was not satisfied with the performance of the tile contractor (Lockheed) or NASA on the tiles. (Defense/Space Business Daily, Vol. 108, No. 21, Thursday, January 31, 1980, p 156)

February 1: The launch of the Solar Maximum Mission (SMM) spacecraft on February 14, at 10:57 pm EST from Complex 17, will mark two "firsts" and two "lasts" in the unmanned launch program at KSC.

SMM will be the last planned launch from Cape Canaveral of a strictly scientific satellite on a Delta or Atlas-Centaur vehicle. It will also be the last payload for either vehicle to be funded entirely by NASA. This will be the first launch of the 3914 Delta without a third stage. (The 3914 is the uprated version with nine Castor IV solid rocket boosters on its first stage instead of the smaller Castor IIs.) And it is the first Delta launch of a satellite even approaching the 2,360-kilogram (5,200-pound) weight of the SMM. (Spaceport News, Vol. 9, No. 3, February 1, 1980, p 1)

- Yet another piece of the staggering array of hardware necessary for the Space Shuttle was tested last week. One of two recovery vessels to be used for solid rocket booster retrieval arrived at Port Canaveral and elements of its retrieval gear were tested last week.

  The dewatering nozzle plug assembly used in the recovery sequence was put through some of its paces at dockside, while other parts of the recovery system were readied for the first launch. The dewatering plug is a remote controlled device which maneuvers to the bottom of the vertically floating solid rocket booster, plugs the nozzle opening, and pumps out water so that the rocket casing floats horizontally. This prepares the casing for towing back to the Cape for refurbishment and re-use. (Spaceport News, Vol. 9, No. 3, February 1, 1980, p 2)

- The following employees received silver "Snoopy" awards from KSC Director Richard Smith and prime crew astronauts John Young and Bob Crippen (in alphabetical order): Frank Belloboun, Richard Bowman, Hargis Branham, Shirley Brewer, Ollie Bridges, Alphonso Brown, Paul Burke, Sharon Cisewski, Bob Clay, Bill Clemens, John Cochran, Bill Collins, Ruth Cornett, Greg DeBlasio, Leonard Despang, Sherm Evans, Joan Fosdick, Roy Gainer, Connie Gamble, Howard Gardner, Bob Goetz and Ray Guessetto.

ALSO: George Hall, Jim Hammack, Gail Hannas, Del Hanson, John Horan, Jim Inman, Shralyn Lamb, Don Lamond, Louise Lee, Bill Lucas, Robert MacCurry, Howard McClellan, Mark McGee, Marcella Miller, Barry Miner, J.D. Morrison, Larry Murrish, Kenneth Nuchols, Donald Olson, W. Dale Osbourne, Norman Perry and Sanford Proveaux.

ALSO: Stan Russell, Gerald Ryba, David Shelton, Ralph Shivel, John Sichak, Eric Simon, Jerry Smith, Gail Snoody, Lee Stewart, Alfredo Teran, Vince Vanderburg, James Vevera, John Waddell, Bobby West, Claus Wiedemann, Howard Wilkinson, Henry Williams, Larry Williams, Marvin Williams, Eugene Yakabowski and Richard Young. (Spaceport News, Vol. 9, No. 3, February 1, 1980, p 3)

February 2: NASA failed Friday to conduct a second successful firing of three rocket engines identical to those that will propel the Space Shuttle Columbia into orbit.

The cluster firing, which was supposed to last 520 seconds, was halted 4.6 seconds after ignition.

Space agency officials said monitoring equipment shut down the test after excessively high temperatures were recorded in the number three engine's turbo pump-liquid oxygen system.

In December, NASA and Rocketdyne Co. engineers and technicians conducted their first successful long duration cluster firing of three engines.

Rocketdyne is NASA's prime contractor for the development and building of the main engines.

Before the December test, several failures - some of them causing major setbacks in the Shuttle launch schedule - occurred during the cluster firing program. (Today, Saturday, February 2, 1980)

February 4: Astronaut candidates for a future Chinese manned space flight program are undergoing zero-g, centrifuge and physiological stress tests at a Chinese space facility.

The Chinese had said in early January such training was under way.

Specific facilities and tests being performed by the trainees include:

Virbration tests - Chair that provides its occupant with violent vibratory loads is designed to accustom the candidate to launch stresses.

Spinning gondola - Gondola hung from the ceiling is swung back and forth and then spun violently, providing its occupant with a simulation of launch stresses.

Centrifuge - It is being used to simulate launch and reentry g-force loads.

Zero-g training - Parabolic flights in fighter aircraft are being used to provide about 30 sec. of zero-g at a time during which various tasks such as eating are being performed.

Spacecraft simulator - Simulated spacecraft cabin is under use, primarily for habitability exercises.

Impact trainer - Chinese observers described the system as "a thrilling impact test." (Aviation Week & Space Technology, Vol. 112, No. 5, February 4, 1980, p 57)

February 5: "Most of the news is on the problems, but we have been making a lot of solid accomplishments. We finished the major ground vibration test quite satisfactorily and have integrated the test data into the analyses, and we expect no major problems from that.

"We completed the first phase of our main propulsion test firings, the second phase is now in process. We did have a good, full duration run of all three engines in December 1979. We had a shutdown last Friday on our second attempt on a full duration. It turned out to be a minor red line situation that caused no damage and, in fact, it could have run all the way. It was just a question of us being a little conservative and not taking any chances.

"All of the major hardware for the first flight has been delivered and is at Kennedy Space Center. We have completed Orbiter structural testing and we are now converting that test vehicle to the second orbital vehicle, number 099, which will be delivered in June 1982.

"We have passed the 60,000 seconds on our accumulated test time, and the engines are demonstrating a substantial reliability.

"We have fired six of the planned seven solid rocket motors, all successful. We have one more firing to do and that will be by mid-February this year. The launch processing system and facilities have been supporting the testing very well, and we are very pleased that the processing system has had as few bugs in it as it has."

(On the tile situation) "First of all, let me explain what a typical tile installation consists of. It is a little more complicated than popular ideas would have it.

"If you start with the aluminum structure, that has to be treated with Koropon primer to accept the bonding process. That in turn is overcoated with a silicone primer and a silicone adhesive. Then we put on the strain isolation pad, which is a felt material, the purpose of which is to isolate the tile from the structural deflections. This pad is bonded to the structure and is, in turn, bonded to the tile by means of a transfer coat and a tie coat. The tile itself then is a ceramic block coated with black glass in this case and, sometimes they use white glass on the lower temperature tiles. All our tiles currently being installed have a densified layer at the bond line. We found in our testing that that would double the strength of the tile, so all of the tiles that we put on now have a densified layer." ("1981 NASA Authorization," Hearings Before the Sub-committee on Space Science and Applications of the Committee on Science and Technology, U.S. House of Representatives, Ninety-sixth Congress, Second Session on H.R. 6413. February 5,6, 7, 11, 14, 15, 16, 18, 1980. (No. III) Vol. IV p 1232-1234, Statement of John F. Yardley, Associate Administrator, for Space Transportation Systems, National Aeronautics & Space Administration, February 5, 1980)

o The following is the estimated distribution by center of NASA's budget for FY '80 and FY '81, along with a comparison with FY '79.

(in millions of dollars)

Installation	FY '79	FY '80	FY '81
Johnson Space Center	1,297	1,471	1,576
Marshall Space Flight Center	917	1,031	1,234
Goddard Space Fight Center	641	699	774
Kennedy Space Center	362	457	488
Jet Propulsion Laboratory	255	314	313
Langley Research Center	286	304	302
Lewis Research Center	248	276	274
Ames Research Center	236	252	223
Headquarters	220	346	429
Dryden Flight Research Center	35	42	41
Wallops Flight Center	32	37	45
National Space Tech Labs	25	23	22
Various Locations	12	18	16
Total:	4,566	5,270	5,737

(Defense/Space Daily, Vol. 108, No. 24, Tuesday, February 5, 1980, p 184)

o Despite the objections of the House HUD/IA Appropriations Subcommittee, NASA is still planning to conduct the Galileo Jupiter Orbiter/Probe as a dual mission in 1984 using two Space Shuttles and Inertial Upper Stages. The subcommittee had "directed" NASA to develop a modified Centaur upper stage for the Galileo mission if it wanted to conduct that mission, saying that Centaur would be a better Shuttle upper stage than the IUS in the long run.

NASA Administrator Robert Frosch said last week that NASA is examining the Centaur for future use, but not for the Galileo mission. (Defense/Space Daily, Vol. 108, No. 24, Tuesday, February 5, 1980, p 182)

February 6: President Carter, in his printed State of the Union message, included science and technology in his presentation of "the most important challenges facing our country as we enter the 1980s." Following is an excerpt:

Since the beginning of my administration, I have been committed to strengthening our nation's research and development capability and to advancing those areas of science and technology which are vital to our economic and social well-being. That commitment has been reflected in: a 40

percent increase in basic research funding, resulting in the highest research and development funding in our Nation's history: a new Automotive Research initiative in which the industry, in partnership with the Federal Government, will undertake basic research essential to help improve future automobiles; an acceleration of scientific and technological exchanges with the People's Republic of China; a major review of space activities and needs, resulting in a 60 percent increase in space funding and in the development of a space policy that will set the direction of our space efforts over the next decade; and a major new program to encourage industrial innovation.

"Each of the undertakings will be pursued, in cooperation with the Congress, in this year.

"The diversity of our activities in space shows that space technology has become an integral part of our lives - in communications, in remote sensing for defense and civilian purposes, and in studies of the Earth and the universe. Guided by a sound, aggressive, and fiscally responsible space policy, my Administration has undertaken a concerted effort to support and further our space activities.

"During my Administration, the expenditures for Federal space programs have increased by 75 percent. Much of this increase is to meet the increasingly operational nature of our space activities. Nearly half of our expenditures are now for defense purposes; photo-reconnaissance satellites, for example, are enormously important in stablizing world affairs and thereby make a significant contribution to the security of all nations. And my new initiative to establish an oceanic satellite system will provide invaluable ocean data for both the civil and defense sectors, thereby avoiding unnecessary duplication.

"I have also emphasized space science and exploration, continuing to fund such spectacular programs as the Voyager missions that provided us with the remarkable close-up views of Jupiter and its moons. I am proposing two new measures - the space telescope and the new Gamma Ray Observatory to provide a unique capability to observe distant galaxies and to obtain information about our universe from outside the Earth's obscuring atmosphere.

"In 1980, I will continue my strong support for the space program. That will be reflected in my budget and in my continued commitment to the Space Shuttle." (Marshall Star, Vol. 20, No. 21, February 6, 1980, p 1 & 4)

February 7: NASA Administrator Dr. Robert Frosch told the Senate Commerce Committee yesterday that he personally believes that NASA will eventually need "at least five" Space Shuttle Orbiters to meet the requirements of the U.S. and foreign customers.

He said the manifest for Shuttle flights is now as full as the agency had predicted and "is likely to go up. The problem is not finding users but satisfying users." He told the committee that he believes it would be "very tight and risky" to do a full manifest with only 4 Orbiters. (Defense/Space Daily, Vol. 108, No. 26 Thursday, February 7, 1980, p 194-195)

o Legislation directing the President to develop a five-year plan for the U.S. space program -- including specific mission objectives and budgets -- and to propose goals for the space program over a 20-year period has been introduced in the House by Rep. George E. Brown Jr. (D-Calif.), a senior member of the Science & Technology Committee.

Bills with a similar intent were introduced last year in the Senate by Sen. Adlai E. Stevenson (D-Ill.) and Jack Schmitt (R-N.M.), though all differ in specifics.

Among the goals proposed in Brown's National Space Policy Act of 1980 are:

*International cooperation in the implementation of an operational remote sensing satellite system, including the fullest possible declassification of satellite data.

*A commitment by the U.S. to help the less developed countries meet their communications needs.

*Development of improved capability for the interpretation and rapid utilization of satellite remote sensing data.

*The provision of public service communications needs by satellite.

*Encouragement of private sector involvement in space capabilities and systems.

*Improved basic research into the origins of the solar system and the universe. (Defense/Space Daily, Vol. 108, No. 26, Thursday, February 7, 1980, p 196)

o Total development cost in converting the McDonnell Douglas Delta 3910 to the 3920 configuration, which will have 10 percent more payload lift capability, is estimated at $7 to $9 million, with an additional recurring cost of $2.5-$3 million per flight. The modifications include a larger tank capable of carrying 3000 pounds more fuel, originally developed by Japan for its Delta "N" rocket derivative, and a new injector developed by the Air Force. Telesat Canada has agreed to provide up to $3 million towards development of the uprated Delta and NASA expects one other customer to help pay for the development costs. The agency's first use of the Delta 3920 will be to launch the Landsat-D in the first quarter of 1982. (Defense/Space Daily, Vol. 108, No. 26, Thursday, February 7, 1980, p 198)

February 8: Defense Secretary Harold Brown told the Senate Commerce Committee yesterday that the Space Shuttle is "extremely important" to the Defense Department and that DOD is "fully committed" to using it.

Brown's appearance before the commmittee -- the first by a defense secretary on behalf of the Shuttle -- underscored his words.

The defense chief said DOD plans to begin the transition of its operational spacecraft to Shuttle launch in FY '83 and to complete the transition by FY '86. (Defense/Space Daily, Vol. 108, No. 27, Friday, February 8, 1980, p 201)

o The seventh and final test of the Space Shuttle's Solid Rocket Motor (SRM) is scheduled for Feb. 14 at Wasatch, Utah. In anticipation of a successful test, NASA has already assembled the two Solid Rocket Boosters for the first Shuttle flight in the Vehicle Assembly Building at Kennedy Space Center. The SRM is built by Thiokol; the remainder of the SRB by NASA-Marshall. (Defense/Space Daily, Vol. 108, No. 27, Friday, February 8, 1980, p 208)

February 11: Spacelab project engineers are resuming much broader hardware tests at ERNO's Bremen, West Germany, facility where spacecraft software, management structure and personnel changes have been made to correct problems that U.S. and European project officials said slowed development to a virtual standstill in late 1979.

In another key area, the European Space Agency is in the final stages of deciding on a Spacelab utilization plan that has been reinvigorated following the realization in Europe that ESA must plan now for Spacelab use or face a lack of room on shuttle flights resulting from other payload sponsors already reserving space into 1984.

NASA believes the Europeans did not perceive the true scope and progress of the space shuttle program until potential major European Spacelab users and some European political officials recently toured U.S. facilities at the Kennedy Space Center, Fla., and Johnson Space Center, Houston.

Spacelab development costs have climbed to at least 140% of the original estimate to a current projection of about $800 million and a further increase is likely.

NASA currently is scheduled to receive the Spacelab engineering hardware at the Kennedy Space Center in December, 1980, but it hopes that can be advanced to about October 1980. (Aviation Week & Space Technology, Vol. 112, No. 6, February 11, 1980, p 101)

- European Space Agency and National Aeronautics and Space Administration last week signed a $183.9-million contract for manufacture and delivery in 1984 of a second Spacelab, now being designed and built in Europe by ERNO, a subsidiary of VFW-Fokker. (Aviation Week & Space Technology, Vol. 112, No. 6, February 11, 1980, p 101)

- Soviet Union launched ocean survey, navigation and military ferret and reconnaissance spacecraft into orbit in late January. The missions are:

Cosmos 1150 and 1153 - Both navigation spacecraft were launched into the same basic 1,028 x 989-km. (638 x 614-mi.) orbit inclined 83 deg. Cosmos 1150 was launched from Plesetsk Jan. 14, followed by the second navigation spacecraft on Jan. 25.

Cosmos 1151 - The oceanic spacecraft was launched from Plesetsk Jan. 23 into a 678 x 650-km. (421 x 403-mi.) orbit inclined 82.5 deg. The mission is the second of this type launched by the Soviets. The first was Cosmos 1076, launched in early 1979.

Cosmos 1152 - This long-duration film reconnaissance spacecraft was launched Jan. 24 into a 370 x 181-km. (230 x 112-mi.) orbit inclined 67.1 deg. The solar-array-powered Soyuz-type spacecraft is designed to remain operational for 30 days as opposed to the older battery-powered Vostok-type reconnaissance spacecraft with only a two-week operational lifetime. The new design incorporates film pod reentry vehicles to return reconnaissance products to earth for timely analysis.

Cosmos 1154 - The spacecraft has characteristics of a large ferret vehicle. It was launched Jan. 30 into a 671 x 634-km. (417 x 394-mi.) orbit inclined 81.3 deg. (Aviation Week & Space Technology, Vol. 112, No. 6, February 11, 1980, p 102)

- The head of a panel of experts which has been studying the safety of the Space Shuttle said last week that the panel "feels quite good about NASA's ability to insure the safety of the Shuttle, particularly in its first flight."

  Herbert E. Grier, chairman of the NASA Aerospace Safety Advisory Panel, told the Senate Commerce Committee that, "overall we feel confidence that the matter [of safety] is being addressed and addressed adequately" by NASA. "We don't see any insurmountable problems that will prevent the first flight."

  At the same time, he said the panel is less certain about the reusability of the Shuttle and will not be able to further that assessment until after the first flight. He emphasized the importance of conducting the first flight in making further assessments of both the capabilities and the safety of the system. For example, he said that the reusability capability of the thermal protection system is "unknown." (Defense/Space Daily, Vol. 108, No. 28, Monday, February 11, 1980, p 209)

- Chairman Howard Cannon (D-Nev.) of the Senate Commerce Committee has asked NASA to provide him with the agency's nearly complete report on the cost and performance of future alternative upper stages for the Space Transportation System.

Cannon has also asked the agency for a report on the award fees it has granted to its Space Shuttle contractors and the rationale for the awards.

Terming the $100 million reserve in the FY '80 NASA supplemental request "pretty big," Cannon also asked for a report on the impact of a 1, 3 and 6 month delay in the supplemental beyond June 1. (Defense/Space Daily, Vol. 108, No. 28, Monday, February 11, 1980, p 212)

o In an extraordinary report, the General Accounting Office has warned Congress that the United States must increase its funding for materials procesing in space (MPS) or lose its leadership in this potentially enormously beneficial field to such countries as West Germany, Japan, France and the Soviet Union.

While making no specific recommendations, GAO suggested that the U.S. could effectively spend two or three times more than the $20 million it is currently spending on MPS. (Defense/Space Daily, Vol. 108, No. 28, Monday, February 11, 1980, p 213)

February 12: Guided bus tours of NASA's John F. Kennedy Space Center, prime launch site for the Space Shuttle, experienced the largest January attendance since their inception in 1966.

A total of 88,798 visitors toured the space center in January, an increase of 1,137 over the same month in 1979. New attractions at KSC include the major Space Shuttle exhibit in the main building at the Visitors Center. (NASA News Release No. 46-80, February 12, 1980)

o Air Force Secretary Hans Mark yesterday gave the most complete military endorsement of the Space Shuttle program to date, saying that the Shuttle "will, once again, give the United States a dominant position in space operations," providing a capability that the Soviet's "won't match for a decade." (Defense/Space Daily, Vol. 108, No. 29, Tuesday, February 12, 1980, p 217)

- NASA said yesterday that it now estimates the cost to completion of the Tracking & Data Relay Satellite System (TDRSS) will be $1.4 billion, up from previous estimates largely because of a significant increase in interest costs on the Federal Finance Bank loan on the system, which will be leased for a ten-year period. (Defense/Space Daily, Vol. 108, No. 29, Tuesday, February 12, 1980, p 219)

- The latest version of NASA's Space Transportation System (STS) Flight Traffic Baseline, used for planning purposes only, allocates 487 Space Shuttle flights over the FY '82-93 time period as shown below.

  The model includes 7 flights in FY '82, 14 in '83, 22 in '84, 30 in '85, 39 in '86, 46 in '87, 54 in '88 and 55 in each of the remaining five years.

KENNEDY SPACE CENTER (361)

	Spacelab (95)	Upper Stages (195)	Free Flyers (24)	Plat/Struct (27)	Reflights (20)	Total (361)
FY'82	1	6	-	-	-	7
FY'83	3	9	1	-	1	14
FY'84	5	11	1	-	1	18
FY'85	5	14	1	-	2	22
FY'86	7	16	1	1	2	27
FY'87	8	17	3	3	2	33
FY'88	10	22	3	3	2	40
FY'89	10	21	3	4	2	40
FY'90	11	20	3	4	2	40
FY'91	11	20	3	4	2	40
FY'92	12	19	3	4	2	40
Fy'93	12	20	2	4	2	40

VANDENBERG AFB (126)

	Spacelab (21)	Upper Stages (0)	Free Flyers (97)	Plat/Struct (0)	Reflights (8)	Total (126)
FY'84	-		4		-	4
FY'85	1		7		-	8
FY'86	1		10		-	12
FY'87	2		10		1	13
FY'88	2		11		1	14
FY'89	3		11		1	15
FY'90	3		11		1	15
FY'91	3		11		1	15
FY'92	3		11		1	15
Fy'93	3		11		1	15

(Defense/Space Daily, Vol. 108, No. 29, Tuesday, February 12, 1980, p 222)

o The FY'81 NASA budget authorizes the agency to employ 22,713 civil service personnel, an increase of 100 over FY '80, marking the first time since FY '66 that the agency's employment has been allowed to increase. (Defense/Space Daily, Vol. 108, No. 29, Tuesday, February 12, 1980, p 222)

February 13: NASA and the Chinese Academy of Sciences signed a Memorandum of Understanding in Beijing Jan. 24 covering China's participation in the experimental Landsat program. China will establish a ground station in the Beijing area to read out Earth resources data from Landsat D. (Marshall Star, Vol. 20, No. 27, February 13, 1980, p 4)

o An environmental assessment of the immunological/hemalogical effects of microwave power transmissions from a Satellite (Solar) Power System will be conducted by the University of Washington's Bioelectromagnetics Research Laboratory under funding from the EPA. (Defense/Space Daily, Vol. 108, No. 30, Wednesday, February 13, 1980, p 230)

o The target date for the First Manned Orbital Flight of the Space Shuttle has been set for Nov. 30, with the agency saying there is a 90 percent chance for FMOF before March 1981. The schedule is based on having the thermal protection system tiles installed on the Orbiter Columbia by July 31. (Defense/Space Daily, Vol. 108, No. 30, Wednesday, February13, 1980, p 230)

February 14

o The Solar Maximum Mission (SMM) spacecraft, the first spacecraft designed specifically to study solar flares, and timed for launch at the peak of the 11-year sunspot cycle, is set for launch at 11 AM EST tomorrow from the Cape. Launch window is only 8 minutes. A two-stage McDonnell Douglas Delta 3910 launch vehicle will place the $79 million, 5100-pound satellite into a 310-mile orbit. The SMM is the first Multimission Modular Spacecraft (MMS) to be used by NASA. It employs an Instrument Module housing the seven scientific instruments and a bus spacecraft comprised of three equally-sized modules housing the attitude control system (General Electric), power module subsystem (McDonnell Douglas) and command and data handling subsystem (Fairchild Industries). The MSS is also to be used for Landsat-D and is being considered for the GRO, although OBM opposition may hinder future use. (Defense/Space Daily, Vol. 108, No. 30, Wednesday, February 13, 1980, p 232)

- Dr. F. A. Speer, manager of the HEAO program at NASA's Marshall Space Flight Center since 1971, has been named manager of the Space Telescope project for MSFC. He replaces W. C. Keathley, who is transferring to Goddard Space Flight Center as director of the Program Management Directorate. (Defense/Space Daily, Vol. 108, No. 30, Wednesday, February 13, 1980, p 232)

- The Soviet Union yesterday launched eight Cosmos (1156-1163) with a single carrier rocket from Plesetsk as part of their military communications satellite program. The satellites were put into an initial orbit of 1450/1528 kilometers, 74.0 degrees, 115.4 minutes. (Defense/Space Daily, Vol. 108, No. 30, Wednesday, February 13, 1980, p 232)

February 14: The $89 million requested by NASA in FY '81 for Space Transportation System (STS) Operations Capability Development, up from $54.1 million this year, includes $39 million for development of NASA-unique requirements for the Inertial Upper Stage and for support for development of the SSUS-A/D by McDonnell Douglas; $10 million for definition of design specifications for the Liquid Boost Module thrust augmentation system; $13 million for continued development and testing of Multi-Mission and Payload Support Equipment (MMPSE); $15.8 million to continue the reconfiguration of the Mission Control Center at Johnson Space Center, and $11.2 million for payload and operations support to provide for integration, checkout and testing of payloads for the Shuttle missions in 1980-81, and development of equipment for command and control of payloads operating with the Shuttle and Spacelab during STS operations. (Defense/Space Daily, Vol. 108, No. 31, Thursday, February 14, 1980, p 237)

- NASA has now received earnest money for a total of 321 Small Self-Contained Payloads for the Space Shuttle ("Getaway Specials"), payloads weighing less than 200 pounds, receiving no services in space and which will fly on a space-available basis. Charge for these missions is $3000 to $10,000 (1975 dollars). Four months ago NASA had advanced payments for 306 Small Self-Contained Payloads; 20 months ago, advanced payments for 233 payloads. (Defense/Space Daily, Vol. 108, No. 31, Thursday, February 14, 1980, p 237)

February 14:

~~February 15:~~ Only 1/172,000th of a second off schedule, a Delta rocket lifted a solar research satellite through the rain Thursday morning into a successful orbit 357 miles above the Earth.

Five solid rockets and a liquid-fuel engine lifted the craft from launch Complex 17 at 10:57 a.m.

"I can't say much but good about it," said Charles D. Gay, NASA's Director of Deployable Payloads Operations, after the satellite was in orbit. "The weather almost held in there, but it didn't cause us any problems."

The 2 1/2-ton Solar Maximum Mission satellite, the heaviest payload ever boosted into space by a Delta rocket, will monitor eruptions on the sun during 1980, a peak year in solar disturbances.

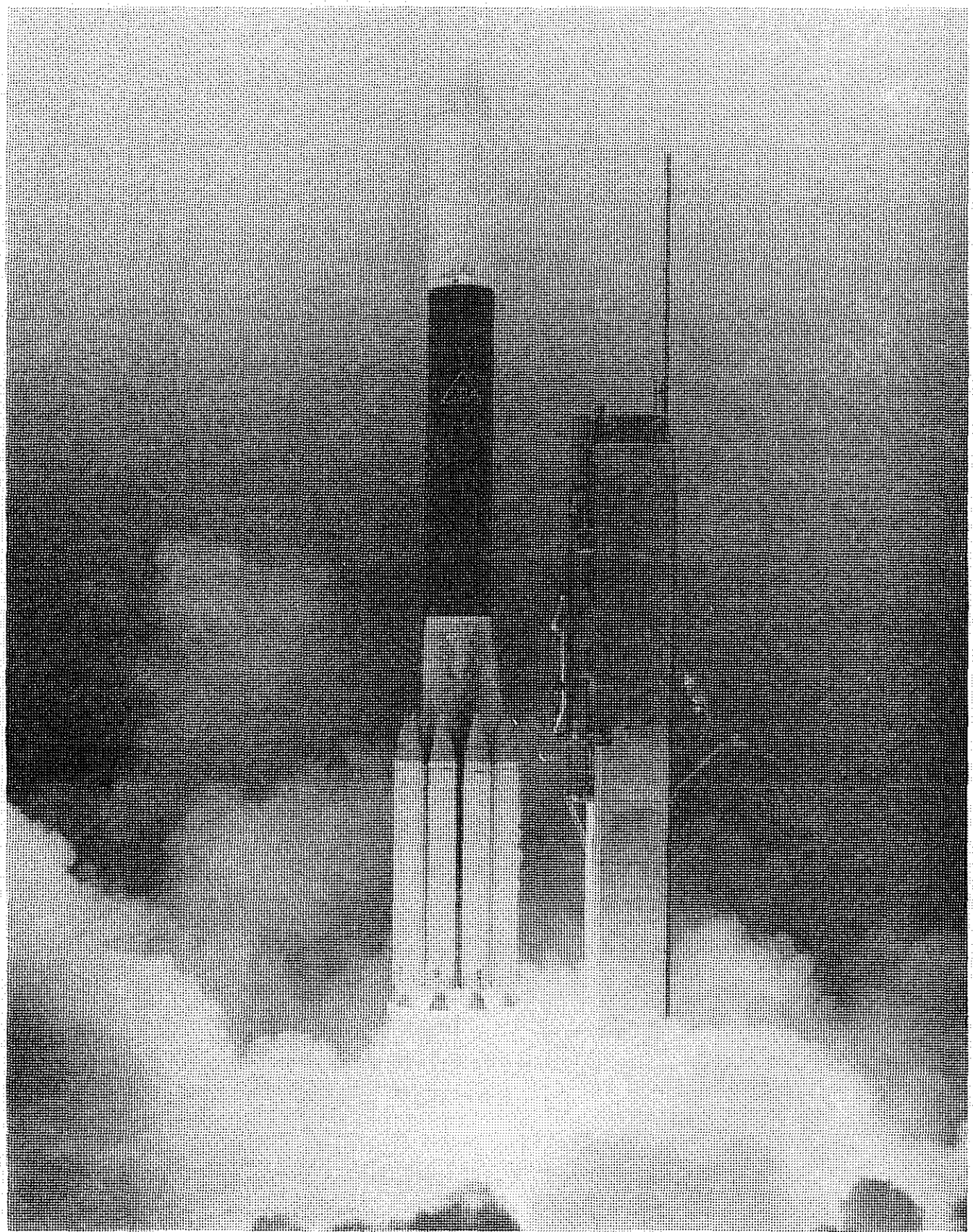
Seven experiments aboard the spacecraft will beam results back to Goddard Space Flight Center in Greenbelt, Md.

The total mission cost $99 million, including $20 million for the single-shot rocket. NASA officials said that this would be the last NASA-sponsered mission using a single-shot rocket. Future NASA missions will be carried aboard the Space Shuttle.

Had the Solar Maximum Mission been carried aboard the Space Shuttle, it would have saved an estimated $5 to $10 million. The Space Shuttle is also scheduled to pick up the satellite in four years, saving $20 to $50 million. (Today, Friday, February 15, 1980)

- A planned 560 second test of the Space Shuttle main engines at Bay St. Louis, Mississippi was cut short after only 4.6 seconds on February 1. (Spaceport News, Vol. 19, No. 4, February 15, 1980, p 3)

- KSC's proposed budget totals $537.6 million for Fiscal Year 1981, which is about a 13 percent increase over the present year. Dallas Gillespie, chief of KSC's Resources Management Office, calls the budget "tight but manageable. We are in a situation of expanded checkout activities at KSC with the Space Shuttle, its payloads and related hardware. Everything contained in the FY '81 budget will have to be carefully orchestrated to support our checkout schedule."



Delta 151 lifted off from Complex 17 at 10:57 a.m. EDT on February 14, 1980, with the Solar Maximum Mission spacecraft

KSC's total budget of $537.6 million includes $342 million to cover expenses directly related to the Space Transportation System and expendable vehicles; $141 million in Resource and Program Management money for civil service salaries, travel and operation of the installation; and $5 million for Construction of Facilities including continued modifications to Launch Complex 39 facilities and ground support equipment.

KSC's personnel level is projected to increase by 10 to 2,201. (Spaceport News, February 15, 1980, p 4)

o The Soviet Union launched a medium-resolution reconnaissance/surveillance satellite from Plesetsk on Thursday, Feb. 7. The photographic payload was put into an orbit of 206/422 kilometers, 72.9 degrees, 90.7 minutes. The satellite was identified as Cosmos 1155. (Defense/Space Daily, Vol. 108, No. 32, Friday, February 15, 1980, p 245)

February 20: U.S. Rep. Bill Nelson Tuesday proposed construction of a $3 million road which would run parallel to SR 402 near Titusville, saying that because of Space Shuttle operations an alternate road will be needed to Playalinda Beach after 1982.

The problem is three-fold. There is only one access road into the southern half of the Canaveral National Seashore and it lies within a three-mile radius of Kennedy Space Center launch pads 39-A and 39-B.

Because some uses of the Space Shuttle involve national defense, the public will not be allowed within three miles of the launch sites when Shuttles are on the pads. (Today, Wednesday, February 20, 1980)

o A Shuttle contractor executives meeting was held at the Kennedy Space Center (KSC) yesterday, and the joint Management Council of the Offices of Space Transportation Systems (STS) Operations and Acquisition is meeting there today.

Dr. Alan M. Lovelace, NASA Deputy Administrator, John Yardley, Associate Administrator for STS Acquisition, and Glynn Lunney, Acting Associate Administrator for STS Operations, attended yesterday's meeting. Yardley and Lunney are also attending the meeting today.

Attending both meetings from the Marshall Center are Dr. W. R. Lucas, Center Director, John S. Potate, Acting Deputy Director, and R. E. Lindstrom, Manager of Shuttle Projects Office.

J. R. Thompson, Manager of Main Engine Project, and G. B. Hardy, Manager of Solid Rocket Booster Project, will participate in today's meeting. (Marshall Star, Vol. 20, No. 23, February 20, 1980, p 2)

o Ameron PCD, of Jacksonville, Florida, has been awarded a contract by the John F. Kennedy Space Center to supply the estimated yearly requirements of a corrosion and rust resistant coating compound and paint thinner for use throughout KSC. Value of the contract is $45,340. (NASA News Release No. 50-80, February 20, 1980)

o NASA has released the following summary of the Thermal Protection System (TPS) tile activity on the first Space Shuttle Orbiter, Columbia (#102):

* A total of 30,922 tiles are required to complete the TPS on Columbia. When the spacecraft was delivered to Kennedy Space Center last June, it had 20,100 tiles installed, leaving 10,822 remaining to be installed.

* Since that time 13,500 tiles have been installed at KSC, but 9400 have had to be removed for failing to meet standards. (Over 12,000 tiles have been pull proof tested to 1.25 times the limit loads expected in flight, of which approximately 14-16 percent failed.)

* NASA believes that another 10,000 to 13,000 tiles will have to be installed on the vehicle as a result of examinations, pull test failures and the fact that they cannot be pull tested on the vehicle.

* Completion of tile installation is scheduled for July 31, but NASA is allowing for a two-month slippage. (Defense/Space Daily, Vol. 108, No. 34, Wednesday, February 20, 1980, p 262)

February 21: John Glenn, the astronaut turned United States Senator, returned to Brevard Wednesday and reminisced for a crowd of former co-workers about the day 18 years ago he became a national hero by circling the Earth three times in a Mercury space capsule.

Former Astronaut John Glenn, standing by monument, attends the dedication ceremony at Complex 14

Much has changed in those 18 years - the space race which enthralled the nation and put Brevard on the map is over. Launching the Space Shuttle and making it a routine space traveler are the next challenges.

Much has changed for Glenn whose life now is dominated by politics. His next challenge is winning re-election to a second term as a Democratic Senator from Ohio.

Although he admitted he wouldn't mind having a fling in a Shuttle, he said he has no regrets about quitting the space program in 1964 for another kind of life in the public eye.

But Wednesday he let just a hint of nostalgia show through.

The first American to orbit the earth and an unabashed American idol, Glenn came back to the pad from which his Mercury space capsule was launched and shook hands again with the men and women who helped him get into space.

Several hundred of them showed up, eager to reunite with the man who erased the national pessimism of the early 1960s and brought the U.S. closer to the New Frontier envisioned by his close friend, President John F. Kennedy.

The occasion was the dedication of a marble monument at Cape Canaveral Air Force Station's Launch Complex 14 in honor of Glenn and the other astronauts of the Mercury program whose flights began at that pad: Walter Schirra, Scott Carpenter and Gordon Cooper.

The monument, etched with pictures of a rocket and service tower, was installed about 15 feet up the ramp that led Glenn to Friendship 7 and glory on Feb. 20, 1962.

His daring orbital flight put the U.S. back in the space race with the Soviet Union - a race that led American astronauts to the surface of the moon.

Today Launch Complex 14 is desolate, surrounded by palmettos. The gantry and tower were torn down last year, their steel sold for scrap. (TODAY, Thursday, February 21, 1980)

- NASA's John F. Kennedy Space Center has awarded a contract for installation of an environmental control system unit to Ellis and Watts, Cincinnati, Ohio.

  The $95,830 fixed price contract is for an environmental control unit which will be installed in the Payload Environmental Trailer which will be used to transport payloads to be flown aboard Spacelab between the Kennedy Space Center and other NASA centers. (NASA News Release No. 51-80, February 21, 1980)

- The third and final static test firing of a flight-type Solid Rocket Motor for the Space Shuttle's Solid Rocket Booster was successfully conducted Feb. 13 near Wasatch, Utah, by Thiokol, and NASA is expected to declare the motor ready for flight as soon as the test data is analyzed. The three successful tests of the flight-type motor were preceded by four successful tests of prototype motors.

  The two Solid Rocket Boosters for the first Space Shuttle flight have already been assembled on the launcher at Kennedy Space Center. The solid motors are 115 feet long, 12 feet in diameter and produce about three million pounds of thrust. (Defense/Space Daily, Vol. 108, No. 35, Thursday, February 21, 1980, p 269)

- NASA Associate Administrator Dr. Thomas A. Mutch has informed Congress that while "technical challenges remain" on the Space Telescope Project, the ST "can be completed within its originally estimated costs." (Defense/Space Daily, Vol. 108, No. 35, Thursday, February 21, 1980, p 269)

- NASA, which has had funds cut in previous years from its Search for Extra-Terrestrial intelligence (SETI) program, is continuing a low level effort to explore the possibility of detecting signals generated by extra-terrestrial intelligence, including signals in the microwave region. Signal detection instrumentation concepts and usage strategy are being developed and will be reviewed by advisory groups of the agency and the National Academy of Sciences during the coming year. (Defense/Space Daily, Vol. 108, No. 35, Thursday, February 21, 1980, p 269)

February 22: A NASA Administrator acknowledged for the first time Thursday that engineers were so involved with guarding the Space Shuttle's tiles against the heat of re-entry that they virtually ignored whether the tiles would remain stuck to the spaceship.

"The attention on the thermal protection system, I am sorry to state, I think was more focused on its ability to do its thermal job," said John F. Yardley, NASA's Associate Administrator for Space Flight.

"In the crush to get that done, nobody really bothered to ask the structural guys if this stuff is going to really stick on," he said.

The Shuttle's heat-protective tiles are still heading the list of problems plaguing the program, Yardley indicated at a briefing. These tiles cover the Shuttle and protect it from the re-entry heat. The problem has been cementing them to the Shuttle so they will not fall off during its liftoff and flight.

Yardley said that NASA has begun to study alternatives to the present heat-protection system using technology that was not available 10 years ago. (TODAY, Friday, February 22, 1980)

o The Soviet Union has launched a high-resolution reconnaissance/surveillance satellite and a Raduga communications satellite.

The military photographic payload, Cosmos 1165, was launched from Plesetsk yesterday, Feb. 21, and put into an orbit of 182/377 kilometers, 72.9 degrees, 89.8 minutes.

The Raduga satellite, internationally identified as Statsionar 2, was launched from Baikonur Cosmodrome and put into a geosynchronous orbit of 36,610 kilometers and an angle of inclination of 0.4 degrees, with a period of 24 hours 38 minutes. (Defense/Space Daily, Vol. 108, No. 36, February 22, 1980, p 277)

February 25: Significant change in philosophy by Rockwell International, elevating the space shuttle's thermal protection tiles to the level of individual structural system as opposed to a protective sheath just along for the ride, has dictated major management realignments and forced intensified long-term tile work requirements here on the orbiter Columbia.

Rockwell management changes to help meet the thermal tile requirements on the orbiter are keyed toward improving top management's engineering oversight and differentiating between shuttle development and production.

"Our changes have been principally changes in structure to permit addition of added talent to the program," according to George W. Jeffs, president of both Rockwell International Aerospace Operations and the Rockwell Space Systems Group. (Aviation Week & Space Technology, Vol. 112, No. 8, February 25, 1980, p 22)

- About 16,000 of the space shuttle's 31,000 thermal protection tiles will undergo densification prior to first launch.

  Large areas of the orbiter processing facility's second bay, currently unoccupied by any spacecraft, have been turned into a tile densification processing facility preparing tiles for the Columbia in the adjacent bay. (Aviation Week & Space Technology, Vol. 112, No. 8, February 25, 1980, p 22)

- A space shuttle thermal protection system tile test article was flown through a simulated shuttle ascent profile for the first time last week on a NASA/McDonnell Douglas F-15 fighter at NASA's Dryden Flight Research Center. An earlier tile installation was flown on the F-15 in an initial series of tests. (Aviation Week & Space Technology, Vol. 112, No. 8, February 25, 1980, p 23)

- A commercial company--"Arianespace"--is being formed in France to take over production of the primarily French-built Ariane launch vehicle from the European Space Agency. ESA Director General Roy Gibson said the action is in line with the agency's policy of "not being repetitive." He said that a convention is being negotiated which will define the interface between ESA and Arianespace, which will have shareholders, including CNES (the French Space Agency) and aerospace companies. The follow-on development of Ariane will continue to be the responsibility of ESA. Gibson said he saw absolutely no connection between the private production of Ariane and possible private responsibility for the Space Shuttle, which he noted is a much more complex undertaking. (Defense/Space Daily, Vol. 108, No. 37, Monday, February 25, 1980, p 285)

- Japan Friday successfully launched its Ayame-2 millimeter wave communications satellite into synchronous transfer orbit. The 286-pound satellite was launched by a Japanese N-1 rocket from Tenegashima. The satellite is to be placed in geosynchronous orbit over New Guinea March 10. It is a replacement for Ayame-1 which failed to go into orbit after launch Feb. 5. (Defense/Space Daily, Vol. 108, No. 37, Monday, February 25, 1980, p 285)

- A flight configuration Space Shuttle Main Engine (SSME) has successfully completed its second series of test preliminary to flight certification--an event termed "a major milestone" by NASA. During the two test series of the Mississippi Test Center, the engines accumulated a total of more than 10,000 seconds of firing, equal to 19 Shuttle flights. The first test series ran from March 27 to June 27 last year. The second series began Sept. 22 and was completed earlier this month. (Defense/Space Daily, Vol. 108, No. 37, Monday, February 25, 1980, p 285)

- The Senate has passed a joint resolution which prohibits astronauts from being "unjustly enriched through the sale of items" carried into space. The resolution declares that all coins and other items carried into space by the Apollo astronauts now in the hands of the Government be retained, and that the Attorney General defend the U.S. against any claims by the astronauts to recover those items. (Defense/Space Daily, Vol. 108, No. 37, Monday, February 25, 1980, p 287)

- Sen. Strom Thurmond (R-S.C.) has informed Secretary of State Vance that he believes that the so-called Moon Treaty expected to be approved at the United Nations "needs considerable rework" by U.S. U.N. personnel before the Senate "could consider ratification..." Thurmond opposed the "common-heritage precept" in the treaty which some charge could prohibit the U.S. from early commercial exploitation of the Moon. (Defense/Space Daily, Vol. 108, No. 37, Monday, February 25, 1980, p 287)

February 26: William C. Schneider, NASA's Associate Administrator for Space Tracking and Data Systems since 1978, is leaving the agency to become vice president of Computer Science Corp.'s Systems Group. Deputy Associate Administrator-OSTDS Norman Pozinsky has been named Acting Associate Administrator. (Defense/Space Daily, Vol. 108, No. 38, Tuesday, February 26, 1980, p 294)

February 27: NASA's John F. Kennedy Space Center has awarded a contract to Energetics Science, a Division of Becton Dickinson & Co., of Elmsford, New York, for a supply of hypergolic vapor detection monitors. The contract is valued at $27,660. (NASA News Release No. 53-80, February 27, 1980)

February 28: Security guards at Kennedy Space Center voted overwhelmingly Wednesday to hang up their shields and blue uniforms and man the picket lines.

The approximately 150 security guards and patrol officers, employed by Wackenhut Services, Inc., rejected a contract earlier this week that did not include a cost of living adjustment.

The say they plan to go on strike by Monday.

And there is speculation that KSC firefighters, also employed by Wackenhut, may strike sometime in early March if they do not receive a cost of living adjustment in their contract. (TODAY, Thursday, February 28, 1980)

- NASA, which had 109,100 contractor employees at the end of FY '79, expects to add 10,600 contractor employees in FY '80 for a total of 119,700. That is projected to increase to 120,800 by March 1980. However, by the end of FY '81 the total is expected to drop by 4700 to 116,100. The FY '81 peak represents the highest level of NASA contractor personnel in ten years. The agency's contractor employment peaked at 376,000 in June 1965 and dropped below 200,000 four years later. The nadir of 100,200 contractor employees came in June 1974. (Defense/Space Daily, Vol. 108, No. 40, Thursday, February 28, 1980, p 305)

- The Japanese Monday lost their Ayame-2 experimental communications satellite after firing small rockets that were to boost the satellite from its transfer orbit to geosynchronous orbit. A similar failure occurred earlier this year with Ayame-1. (Defense/Space Daily, Vol. 108, No. 40, Thursday, February 28, 1980, p 306)

February 29: Security guards at Kennedy Space Center and their union local got the word Thursday from the union leadership in Detroit - they have no authorization to strike Wackenhut Services, Inc. Monday.

The decision by the United Plant Guard Workers of America to turn down a strike by the KSC guards came as a surprise to local president Al Scholar, who called the move unusual.

But Henry Applen, international union vice president, said there was a foulup on the Brevard end.

"The local union did not bother to contact us on a date to strike. We gave them the authorization to take a strike vote only but not to set a date to strike," said Applen, explaining union leadership wants to continue negotiations before giving the green light to strike. (TODAY, Friday, February 29, 1980)

o Space shuttle engineers Thursday conducted a successful cluster firing of three engines identical to those that will lift the rocket plane Columbia into orbit, NSAA officials reported.

The firing took place at the National Space Technological Laboratories, Bay St. Louis, Miss., and lasted more than nine minutes, officials said.

Elated NASA and Rocketdyne officials said the test was perfect. They particularly were pleased because this was only the second successful long-duration cluster firing in about a year of attempts and delays. (Sentinel Star, Friday, February 29, 1980)

o NASA's John F. Kennedy Space Center has awarded a contract to Dage-MTI, Inc., of Michigan City, Indiana, for modification of Dage operational television cameras to be used in the Space Shuttle's orbiter's cockpit.

The $30,783 fixed price contract is to be completed within eight weeks. (NASA News Release No. 54-80, February 29, 1980)

- A space Shuttle on-orbit thermal tile repair kit is under development for NASA.

  The kit is designed for use by Shuttle crews to repair possible damage to any of the thousands of ceramic-based tiles being applied here at Kennedy Space Center to protect the orbiter from intense heat during reemtry into the Earth's atmosphere. The kit will not be flown on the first test flight but will be held in reserve for possible use on later flights where the launch environment will approach design conditions.

  A space-suited astronaut would don a backpack maneuvering unit in the Shuttle cargo bay, inspect the outside of the orbiter and, if necessary, use the kit to apply ablative repair materials.

  A letter contract signed by NASA and Martin Marietta Aerospace, Denver Division, calls for Martin to design and fabricate three repair kits for delivery to NASA by September. Two of the units are for flight use and the third is for astronaut training. (Spaceport News, Vol. 19, No. 5, February 29, 1980, p 5)

- Planning Research Corporation recently announced the promotion of Dan F. Thompson to the position of Branch Manager of Design Services for the company's KSC operations.

  Thompson joined PRC in 1976. From 1955 to 1964, Thompson served at the Air Force Eastern Test Range as Research and Development Officer, Range Safety Officer, Chief of Range Scheduling, and Director of Range Operations. He retired from the Air Force as a colonel after 24 years of service. (Spaceport News, Vol. 19, No. 5, February 29, 1980, p 5)

- KSC's newest addition to its burgeoning transportation fleet is a helicopter. KSC had petitioned for a chopper for over two years. Finally, NASA reassigned one from the Ames Research Center in California.

  The Biomedical Office will be the primary user of the chopper for emergency medical evacuation. For example, during hazardous operations, such as the flight readiness firing when the Shuttle's main engines will be fired for 20 seconds on the pad, the copter will be on standby for quick transport of personnel, who cannot be treated here, to the Shands Teaching Hospital in Gainesville, Fla. The helicopter will also be available for security and photographic needs.

The helicopter will be stored at a KSC hangar at Patrick AFB and on standby at the Shuttle Landing Facility during hazardous operations. Before it can be used, however, the chopper will have to be outfitted with equipment for medical evacuation. The Biomedical Office estimated they will have some limited capability with the helicopter beginning sometime in March. (Spaceport News, Vol. 19, No. 5, February 29, 1980, p 5)

- Henry R. Van Goey, manager of KSC's Western Operations Support Office in Lompoc, California, retired today after 34 years with the federal government.

  He has been the manager of KSC's unmanned launch operations at the Western Test Range since august 1966. He will be pursuing his personal business and real estate investments in Lompoc after retirement. (Spaceport News, Vol. 19, No. 5, February 29, 1980, p 7)

March 3: As a result of the Soviet invasion of Afghanistan, the U.S. has deferred or put off all major space undertakings with the Soviet Union, including joint working group meetings and large scale projects. This includes a planetary working group meeting that had been slated for March. The one exception, according to NASA, is the Search and Rescue Satellite (SARSAT) project, where the Soviets will equip two Soviet spacecraft (COSPAS) with transponders which will be compatible with the U.S./Canadian/French project. NASA is also continuing "low level technical exchanges" with the Soviets. (Defense/Space Daily, Vol. 109, No. 1, March 3, 1980, p 3)

- The Space Shuttle Main Engine moved back on the track Thursday with a successful 550-second full duration firing of the three-engine Main Test Article at the National Space Technology Laboratories in Mississippi. An earlier attempt, on Feb. 1, was aborted after four seconds when potential problems were detected. Thursday's test was the second successful full duration test of the three-engine SSME cluster, with five more needed to certify the engine for the maiden flight of the Shuttle. It takes about three weeks to ready the cluster between tests. (Defense/Space Daily, Vol. 109, No. 1, Monday, March 3, 1980, p 4)

- The U.S. has discussions underway or planned with France, the European Space Agency, Canada, Japan and India aimed at the establishment of complementary, nationally-operated remote sensing satellites. International cooperation in the area of space-tested geodynamics measurements is also being sought by the U.S. in conjunction with NASA's newly-defined geodynamics program. (Defense/Space Daily, Vol. 109, No. 1, Monday, March 3, 1980, p 4)

- General Electric's Space Division (Valley Forge, Pa.) and TRW Space Systems Group (Redondo Beach, Calif.) were selected by NASA Friday for six-month, $500,000 Phase I concept definition studies of the new Gamma Ray Observatory spacecraft, being initiated as a new start in FY '81. One of the contractors will be selected to build the spacecraft under a separate follow-on contract, dependent on congressional approval of the $180-$225 million spacecraft project. McDonnell Douglas Astronautics was an unsuccessful bidder for the Phase I study. The GRO is to be launched by the Shuttle in 1985 as a mission to detect gamma rays. (Defense/Space Daily, Vol. 109, No. 1, Monday, March 3, 1980, p 8)

- Extensive manned space flight activity, a major expansion of synchronous orbit communications capability and continued planetary flights to Venus will highlight the Soviet space program for the next several years.

  Soviet flight of a manned reusable winged space vehicle by about 1985 will provide the Russians with a high-launch-rate manned capability at less expense, although the new Soviet spacecraft will have nowhere near the capability of the U.S. space shuttle. The Soviet system will first be launched by an expendable booster and by the 1990s could involve a flyback booster for a totally reusable system. (Aviation Week & Space Technology, Vol. 112, No. 9, March 3, 1980, p 83)

- Rapidly increasing interest in commercial applications and competition with the U.S. are two trends that will continue to cut across major European space programs, which are concentrated largely in the fields of launcher and Spacelab development, telecommunications and earth observations.

  Development of the Ariane launcher continues to be Europe's most important space program. Cost to completion of the first development phase, which is due after the fourth test flight near the end of the year, is about $1 billion. About $216.7 million has been earmarked for the program this year by the European Space Agency. This amounts to 25% of ESA's budget.

  A follow-on development program has been proposed. This is designed to upgrade the launcher's payload capability from its present 3,747 lb. in transfer orbit to about 5,180 lb. for the so-called Ariane 3. Costs for such a program are in the neighborhood of $120 million.

  However, officials are looking at the development of Ariane 4 and 5. The latter would be capable of putting a 9,500-lb. payload into a 124-mi. orbit by 1990. Two types of payload have been proposed. One is a mini-shuttle, designated Hermes, which could hold two to five astronauts and varying amounts of cargo. The other is an automated laboratory, designated Minos, capable of manufacturing limited amounts of materials in a zero-gravity environment. (Aviation Week & Space Technology, Vol. 112, No. 9, March 3, 1980, p 89)

- Japan is nearing maturity in operational satellite technology through experience gained in launching 19 satellites and more than 300 smaller sounding and observation rockets during the 1960s and 1970s. The country expects to increase significantly its spacecraft technology and activity in the 1980s.

  One of the largest Japanese space programs involves use of the three-axis control technique, which will be applied for the first time to a Japanese maritime observation satellite to be launched in fiscal 1984. Major Japanese aerospace manufacturers are preparing for a spurt in space activities by improving their own technology while entering into joint programs with such companies as RCA in the U.S. and Germany's Messerschmitt-Boelkow-Blohm.

  Japan also is seeking to reduce its reliance on the U.S. National Aeronautics and Space Administration, which earlier launched three spacecraft for Japan, and instead will launch all planned spacecraft itself. (Aviation Week & Space Technology, Vol. 112, No. 9, March 3, 1980, p 92)

- New ground rules aimed at avoiding some of the problems encountered during production of the first operational NASA/Rockwell International space shuttle have been established at Rockwell's Palmdale, Calif., production facility in preparation for completion of the second orbiter.

  The new guidelines include increased emphasis on availability of various shuttle production parts and components in what has been described as similar to an "assembly line" operation. Attention also will be focused on insuring that an adequate supply of thermal protection system (TPS) tiles is available during the tile application process, and that the tiles are applied to the orbiter in sequence.

  An improved thermal protection system tile material, which program officials had hoped to use on the second operational space shuttle, may not be developed in time to meet Orbiter 099 production schedules.

  A decision by mid-1980 had been expected on whether the lighter, more durable tile--called fibrous refractory composite insulation--would be available in time for use on the second orbital vehicle. It appears that first large-scale use of that tile will be on the third operational shuttle--Orbiter 103. (Aviation Week & Space Technology, Vol. 112, No. 9, March 3, 1980, p 223)

March 4: In a status report on the Space Shuttle, the House Subcommittee on Space Science & Applications has acknowledged the cost growth on the shuttle development program, but said that the problems are understandable and that management of the program has improved.

The subcommittee noted that development cost of the Shuttle has risen from $5.15 billion in FY '71 dollars to $6.18 billion in FY '71 dollars. It added that additional costs will be incurred, and the Shuttle schedule slipped further, if the $300 million FY '80 supplemental requested by the agency is not approved by June.

The subcommittee also reported that the launch costs of the Shuttle have increased from $10.5 million in FY '71 dollars to $15.2 million in FY '71 dollars.

"While it is always unfortunate to exceed initial cost estimates for any target, a high risk development program such as the Space Shuttle is bound to encounter some unforeseen problems that will increase costs," subcommittee chairman Don Fuqua (D-Fla.) said.

He said a major reason for the cost increase "has been a tendency on the part of Administration budget officials over several years to hold down annual development funding, thus forcing NASA to work with a schedule which deferred testing and evaluation until the end. This success-oriented philosophy of budgeting," he said, "has resulted in problem identification at a point where correction became far more costly than if the problems were located and corrected at an earlier stage of development."

Fuqua said that considerable improvements have been made in the management of the Shuttle program and that he is pleased that current NASA budget predictions for completion of the Shuttle program "appear realistic and are not disproportionately conservative." (Defense/Space Daily, Vol. 109, No. 2, Tuesday, March 4, 1980, p 10)

March 5: Negotiations were still at an impasse Tuesday as engineers at Kennedy Space Center entered the fourth week of their strike against Boeing Services International.

Members of the newly formed union say they will hold out for quarterly cost-of-living adjustments as part of their first contract with Boeing. Pickets have been protesting outside two space center gates since the strike was called Feb. 13.

The 200 striking engineers, members of the Florida Association of Professional Employees, represent a tenth of Boeing's 2,000 employees.

Also deadlocked in contract negotiations, security guards at the space center are awaiting union sanction for their strike against Wackenhut Services, Inc.

The 150 security employees approved a mandatory strike last week, but were asked to delay the action by officials of the Detroit-based United Plant Guard Workers. (Sentinel Star, Wednesday, March 5, 1980)

o Security officials at Kennedy Space Center Tuesday made public a letter believed to be written by Soviet KGB Col. Rudolph A. Herrmann telling NASA authorities The Dec. 21, 1968, launch of Apollo 8 "will be a lovely Christmas cracker when it takes off."

The FBI said Monday that one of Herrmann's first missions in the United States was to mail a letter to authorities alleging a manned space vehicle might have been sabotaged. The FBI said the exact text of the letter was radioed to him in code by the KGB.

Herrmann said he believed the mission was an Apollo space shot and the FBI said the ploy was unsuccessful. FBI officials identified the double agent only by the cover name he used in the United States.

The FBI produced the top-ranking Soviet turncoat spy at an extraordinary news conference in Washington on Monday.

The letter was obtained Tuesday from security officials at the Kennedy Space Center. It was signed by "M. Miller," postmarked Atlanta and contained no return address.

Though Kennedy Space Center Security Chief Charles L. Buckley Jr. refused to say for sure Herrmann wrote the letter, he pointed out that it matched all the details the double agent revealed at his Monday news conference. (TODAY, Wednesday, March 5, 1980)

o The Soviet Union reported last week that the Soyuz-T spacecraft and the Salyut-6 space station complex were in an orbit of 343/369 kilometers, 51.6 degrees, 91.5 minutes. The station has completed 13,915 revolutions. Soyuz-T was launched into space on December 15. (Defense/Space Daily, Vol. 109, No. 3, Wednesday, March 5, 1980, p 21)

March 6: As part of his planned up-to-$20 billion reduction in the FY '81 Federal budget submitted in January, President Carter has asked NASA to submit plans for cutting $760 million from its $5.737 billion FY '81 budget, representing 18 percent of that authorization.

The threat to NASA seems more ominous in light of information that the White House originally asked NASA to come up with reductions totaling $630 million, and now has boosted that to the $760 million target.

The potential devastation of the nation's space program if a reduction of that magnitude is ordered is underscored by the fact that $760 million represents more than 40 percent of the non-Space Shuttle related portion of NASA's R&D budget. (Defense/Space Daily, Vol. 109, No. 4, Thursday, March 6, 1980, p 25)

o The Soviet Union launched a photographic reconnaissance/surveillance satellite into a medium-resolution orbit on Tuesday, March 4 from Plesetsk. Cosmos 1166 was put into an orbit of 208/406 kilometers, 72.9 degrees, 90.7 minutes. (Defense/Space Daily, Vol. 109, No. 4, Thursday, March 6, 1980, p 27)

o The FLTSATCOM III satellite, launched Jan. 17 from Cape Canaveral, was declared operational by the Air Force Feb. 17. Each of the three $60 million FLTSATCOM satellites has 23 communications channels, including one solely for use by the National Command authorities. (Defense/Space Daily, Vol. 109, No. 4, Thursday, March 6, 1980, p 32)

March 8: The House subcommittee in charge of authorizing NASA's budget visited Kennedy Space Center Friday as part of a whirlwind tour of the agency's centers.

Members of the Subcommittee on Space, Science and Applications visited the Orbiter Processing Facility and heard a report on the status of the Shuttle and its various cargo projects, a NASA spokesman said. The annual tour is part of the budget authorization process.

While at KSC, Rep. Don Fuqua, D-Fla., chairman of the subcommittee, said he believes Congress will not approve a cut in NASA's 1981 budget as drastic as that suggested by the White House's Office of Management and Budget. (TODAY, Saturday, March 8, 1980)

Congressional Subcommittee tours KSC

March 10: Space shuttle main engine test program will push for significant performance milestones this month, development objectives that engine management at the Marshall Space Flight Center here are optimistic they can meet as a result of the successful completion in February of a second flight certification firing series and a 555-sec. engine cluster test.

Near term test series are:

Initiation of the first of two flight certification cycles on Engine 0009. The test will involve a minimum of 13 firings and 5,000 sec. of burn time for each series, certifying basic engine capability for the first 10 shuttle missions. A 520-sec. launch duration test has begun this series.

Initiation of abort demonstration tests of Engine 2004 that will for the first time involve engine firings at the 109% full-power-thrust level. Abort capability at 109% is a program requirement by about the fifth shuttle mission, according to J. R. Thompson, main engine project manager here. A 100-sec. calibration firing has started this series.

Initiation by late March or early April of a 5,000-sec., 13-test certification series on Engine 2004 to certify performance at 102% normal mission thrust with up to a 109% thrust abort capability by late 1981 or early 1982, Thompson said. First shuttle missions will be launched with 100% thrust capability, and the 102% would allow the loading of an additional 2,000 lb. of space shuttle payload. (Aviation Week & Space Technology, Vol. 112, No. 10, March 10, 1980, p 39)

March 11: Engineers for Boeing Services International were back on the job Monday, ending their 3 1/2-week strike at Kennedy Space Center.

Strikers voted Saturday to ratify a three-year contract, even though it didn't provide the quarterly cost-of-living adjustments demanded in earlier negotiations. The strike involved about 200 of Boeing's 2,000 employees.

Guards at the space center, also threatening to strike, report no developments in their contract dispute with Wackenhut Services, Inc. Union officials say they will stand fast in their demand for a quarterly cost-of-living adjustment when negotiations open again early next week. (Sentinel Star, Tuesday, March 11, 1980)

- After evaluating five possible space program new starts, the European Space Agency's Science Program Committee has decided to initiate development of a $185 million "astrometry" satellite--designated "Hipparcos"--which will be designed to measure the positions, motions and velocity of about 100,000 stars. (Defense/Space Daily, Vol. 109, No. 7, Tuesday, March 11, 1980, p 51)

March 12: Brian M. Duff has been named Director of Public Affairs at NASA Headquarters. The appointment is effective April 7, 1980.

As Director of Public Affairs, Duff will be responsible for agency-wide activities involving the general public, the news media and the educational community. He reports to the Associate Administrator for External Relations and serves as a principal advisor to the Administrator and Deputy Administrator.

Duff brings to NASA more than 17 years of management communications and media services experience, including 10 years of government public affairs experience. He is currently Managing Director of Public Affairs at Amtrak in Washington, D.C.

Prior to that, Duff was Deputy Assistant Secretary for Public Affairs at the Department of Health, Education and Welfare.

Previously, Duff was employed by NASA at the Johnson Space Center, where he directed the full range of public affairs activities during a period of intense manned space flight activity, including five lunar flights and the first manned landing on the Moon. Duff also spent five years as Headquarters Director of the Special Events Division, where he was responsible for a wide variety of public affairs activities. (Marshall Star, Vol. 20, No. 26, March 12, 1980, p 1)

March 13: Klopf Audio/Video Company of Dayton, Ohio, has won a contract to supply ground equipment for television news coverage of Space Shuttle flights.

The $32,051.25 contract was won by the small business firm which will supply the equipment within 90 days. Klopf Audio/Video is located at 3381 Successful Way in Dayton. (NASA News Release No. 57-80, March 13, 1980)

March 14: The second of seven cluster firings of the Space Shuttle main engines was successfully run at the National Space Technology Laboratories at Bay St. Louis, Mississippi on February 28.

All test objectives were met during the 551-second firing, which included several firsts in the test profile. One noteworthy accomplishment was the successful gimballing (steering) of the three engines while they were simultaneously being throttled back from 100% to 70% power. It was the first time that the maneuver had been successfully tested.

In addition, more than 300 seconds of so-called "pogo pulsing" during the run enabled technicians to explore the whole spectrum of the pogo environment. Pogo pulsing is a phenomenon, experienced in some earlier booster engine systems, in which cyclic propellant pressures cause violent vertical jarring in flight vehicles. The Shuttle's pogo suppression system was verified in this test. (Spaceport News, Vol. 19, No. 6, March 14, 1980, p 1)

o Emphasis on a new generation of flight hardware--the reusable Space Shuttle--is reflected in the theme of the Seventeenth Space Congress, "A New Era In Technology". The annual event will be held in Cocoa Beach April 30 through May 2.

The first panel on Wednesday morning will be an update on present and future space transportation systems. Later that day, a paper session will provide a current update on Shuttle hardware and operations. Chairing the individual sessions will be John F. Yardley, NASA Associate Administrator for Space Transportation System Acquisition, and Dr. Myron S. Malkin, director of NASA's Space Shuttle Program. A second afternoon session is still to be determined.

Thursday's program will begin with a session on Technology Applications, and specific examples of the transfer of space technology to industry and to the public sector. Heading this session will be J. Ronald Thornton, NASA State Technology Applications Center, State University System of Florida. Also on tap for Thursday is a discussion of the broad spectrum of payload programs for the Shuttle and other launch vehicles. Jesse Moore, director of the Spacelab Mission Integration Division at NASA Headquarters, will chair the session.

Highlights of progress and problems in continuing life support for "Spaceship Earth" is the topic for Thursday afternoon's first session, to be chaired by Dr. Gerald Lowery, Director of Energy Programs, Science Applications, Inc. John Neilon, manager of KSC's Cargo Projects Office, will be chairperson for a session on International Activities in Space.

Thursday night, KSC Director Richard G. Smith will host Meet The Astronauts, a panel open to the general public, with several astronauts and payload specialists discussing future activities for men and women in space.

Friday's final panel session, A New Era In Technology, will be headed by Al Worden, Apollo 15 astronaut and now president of Alfred M. Worden, Inc.

Also on the schedule are a banquet on Wednesday night and a luncheon on Thursday. Luncheon speaker will be Major General James H. Marshall, Commander, Space and Missile Test Organization. Names of the banquet speaker, keynote address speaker, and astronauts taking part in the panel will be announced at a later date.

On display will be exhibits by NASA and all major contractors participating in the Space Shuttle program, along with the Youth Science Fair, highlighting science exhibits from the Brevard County School District. (Spaceport News, Vol. 19, No. 6, March 14, 1980, p 3)

o ACL-FILCO Corporation, 3333 W. Warner Avenue, Santa Ana, California has won a contract with NASA to manufacture hydraulic control units for use in the Space Shuttle program.

The firm fixed price contract is for a total of $1,200,000.

The units will be used to test the hydraulic systems of both the Space Shuttle orbiter and its two solid rocket motors before launch. Hydraulic systems provide steering, flight control and a variety of other functions aboard the combined vehicle. (NASA News Release No. 56-80, March 14, 1980)

o NASA's John F. Kennedy Space Center has awarded a contract to Euclid Garment Manufacturing Company of Kent, Ohio, to provide coveralls, hoods and booties required for KSC personnel in support of the Space Shuttle program.

This $25,578 contract is one set-aside for small businesses. Euclid is to complete the work within 75 days. (NASA News Release No. 58-80, March 14, 1980)

- NASA's John F. Kennedy Space Center has awarded a contract to Sigmaform Corporation of Santa Clara, California, to supply 15,000 feet of electrical insulation covering.

  The contract is valued at $77,500 and is to be completed within six weeks. (NASA News Release No. 59-80, March 14, 1980)

- The House Government Operations Committee has criticized NASA for not informing Congress prior to the launch of the Skylab Orbital Workshop in May 1973 of the possible risk of unplanned reentry of the workshop.

  NASA believed that Skylab would remain in space well into the Space Shuttle era and, if necessary, could be reboosted to a safe orbit via the Shuttle. However, the committee said that in November 1970, NASA's manned space flight chief, Dale Myers, acknowledged that if the Skylab should reenter prematurely that there was one chance in 55 of a single worldwide casualty and he suggested that risk could be substantially reduced by spending an additional $20 million. The committee also said that NASA had a report in May 1973, prior to Skylab's launch, that 505 pieces of the spacecraft would survive reentry if it should enter prematurely, but that it did not give this information to Congress until 1977. (Defense Daily, Vol. 109, No. 10, Friday, March 14, 1980, p 78)

March 18: Sen. William Proxmire (D-Wis.), chairman of the Senate appropriations subcommittee responsible for the NASA budget, has recommended that the Administration cut NASA's FY '81 budget by the full $760 million that NASA has been asked to prepare for as the first step in the Administration's plans to cut $13-$14 billion from the FY '81 Federal budget.

The Administration insists that it has not reached a final decision on the exact details of the budget reduction, but will do so by the end of the month.

Proxmire said the Administration should accept the $760 million in cuts which NASA has submitted to the White House at the President's request. He said the cut could be achieved by postponing new programs, cutting back on overhead and stretching out the Space Shuttle. (Defense Daily, Vol. 109, No. 12, Tuesday, March 18, 1980, p 89)

March 19: NASA's John F. Kennedy Space Center has awarded a second contract to Ellis and Watts of Cincinnati to provide an environmental control system for use in processing Space Shuttle payloads such as automated spacecraft.

This contract is valued at $368,740. (NASA News Release No. 62-80, March 19, 1980)

- The Wall Tube & Metal Products Co. of Newport, Tennessee, has been awarded a contract from NASA's John F. Kennedy Space Center for stainless steel tubing needed to support Space Shuttle requirements.

  Value of the contract is $119,419. (NASA News Release No. 61-80, March 19, 1980)

- NASA's John F. Kennedy Space Center has awarded a contract to TFI Corporation of New Haven for a portable x-ray unit to be used by the Nondestruct Evaluation Laboratory in support of the Space Shuttle and expendable launch vehicle operations.

  The contract, valued at $27,469, is an award made to a small business and is to be completed by TFI within 60 days. (NASA News Release No. 60-80, March 19, 1980)

- The Soviet Union launched a military navigation satellite yesterday, March 18, from Plesetsk, identified as Cosmos 1168. It was put into an orbit of 981/1026 km, 82.9 deg, 104.9 min. Missions into this regime have also been identified as "natural resources" flights. (Defense Daily, Vol. 109, No. 13, Wednesday, March 19, 1980, p 101)

- To remove any ambiguity in the applicability of Federal law to criminal acts committed in space, NASA has proposed a regulation giving the commander of the Space Shuttle the responsibility and the authority to maintain order on Shuttle missions. The regulation would give the commander authority to use "any reasonable and necessary means, including physical force" and arrest, to carry out that responsibility. Criminal charges could be punishable by a fine up to $5000, imprisonment for a year, or both. (Defense Daily, Vol. 109, No. 13, Wednesday, March 19, 1980, p 101)

March 20: The House Budget Committee, the first congressional group to tackle the 1981 federal budget since balance-the-budget fever hit this city, Wednesday recommended that no money be cut from the upcoming Space Shuttle budget.

In fact, if the rest of Congress and President Carter heed the committee's recommendation, NASA's overall budget will sustain relatively minor cuts compared to the $760 million Carter's own budget staff reportedly has considered trimming from the agency. (TODAY, Thursday, March 20, 1980)

o Teledyne Brown Engineering, Incorporated, a division of Teledyne Industries, has won a cost-plus-fixed-fee contract to install payload checkout equipment here.

The estimated total cost of the contract will be $1,046,655, of which $355,000 is for work already performed. All work under the contract will be performed within the Operations and Checkout Building at Kennedy Space Center. (NASA News Release No. 45-80, March 20, 1980)

o Soviet manned spaceflight leader, Lt. Gen. Vasily Shatalov, says there will be no more female cosmonauts until space travel no longer jeopardizes "the fair sex." Explaining there are presently no women in training for the Soviet space program, Shatalov conceded that space flights of over one year duration would be unthinkable without women cosmonauts. (Defense Daily, Vol. 109, No. 14, Thursday, March 20, 1980, p 105)

o A study of laser-heated propulsion devices is called for in a request for proposal being issued by NASA's Marshall Space Flight Center March 20.

The center will also be seeking proposals for a definition study of modular integrated solar energy systems, with bid packages to be released March 28. (Defense Daily, Vol. 109, No. 14, Thursday March 20, 1980, p 105)

March 21: Kennedy Space Center guards plan to strike Tuesday.

The decision to walk out was made Thursday after lengthy wage talks broke down.

Negotiations among the guards' union, their employer--Wackenhut Services Inc.--and a federal mediator ended over disagreements on the inclusion of a cost of living adjustment in the guards' contract, said federal mediator Richard Deem.

But both NASA and Wackenhut Services officials say they are prepared to keep the space center fully operational.

"We have been assured of uninterrupted service," said Harold Gooch, NASA chief of labor relations.

The company's strike plan includes the use of management and other Wackenhut personnel to perform the guard duties, said Richard Wilson, Wackenhut Services Inc. senior vice president and general manager. (TODAY, Friday, March 21, 1980)

- o The House Budget Committee has approved the recommendation that $100 million be cut from the NASA, National Science Foundation and Department of Energy science, research and technology outlay request for FY 1981, without cutting into Space Shuttle related development. (Defense Daily, Vol. 109, No. 15, Friday, March 21, 1980, p 110)

- o NASA General Counsel S. Neil Hosenball will debate the merits of the "Moon Treaty" approved by the United Nations General Assembly at a session of the AAS's 18th Goddard Memorial Symposium March 27 at the Washington Hilton Hotel. Opposition to the treaty, on the grounds that it could prevent the U.S. from expoiting lunar resources, will be voiced by Leigh S. Ratiner of the L-5 Society. [A U.S. Government interagency task force is currently reviewing the Moon Treaty and is expected to report to Secretary of State Cyrus Vance by May 1.] (Defense Daily, Vol. 109, No. 15, Friday, March 21, 1980, p 115)

March 25: Soyuz-T, launched from Baikonur Cosmodrome on Dec. 16 and linked up with Salyut-6 on Dec. 19, has separated from the space station after 96 days. Soyuz-T has been described as a spacecraft that incorporates the features of the basic Soyuz manned craft and the cargo carrying capabilities of the Progress unmanned transports. It is equipped with a new propulsion system and a color TV monitoring system. Salyut-6 yesterday was in an orbit of 344/363 km, 51.6 deg, 91.4 min. (Defense Daily, Vol. 109, No. 17, Tuesday, March 25, 1980, p 127)

- The Space Shuttle Main Engine has taken another step forward with its second successful full-duration test firing in a row. The three-engine SSME Main Propulsion Test Article was static fired for 535 seconds March 20 at the Mississippi Test Facility. The MPTA successfully underwent a similar 555-second test on Feb. 28. Four additional full duration firings are needed to certify the SSME for the maiden Shuttle flight. It takes about three weeks to ready the cluster between tests.

  The test marked the first time that the engines were gimballed while a "pogo effect" was induced so that engineers could observe the vehicle's reaction. The test was designed to demonstrate the engine accumulator system's capability to prevent pogo during flight.

  The MPTA was subjected to two periods of throttling two engines to 70 percent of rated power with the third at 100 percent to verify the main propulsion system's performance at the differential throttling that is necessary during the early seconds of a Shuttle launch.

  The test also marked the first simulated failure of the thrust vector control system to test whether redundant systems would perform properly in the event of such a failure during launch. (Defense Daily, Vol. 109, No. 17, Tuesday, March 25, 1980, p 130)

- A single Space Shuttle Main Engine (SSME) was successfully fired for 520 seconds at 100 percent of rated power March 22 at the National Space Technology Laboratories. Another single engine test, including about 320 seconds above 100 percent of rated power was scheduled late yesterday afternoon. (Defense Daily, Vol. 109, No. 17, Tuesday, March 25, 1980, p 130)

March 26: President Carter has presented the Goddard Memorial Trophy of the National Space Club to NASA administrator Robert Frosch on behalf of the NASA Voyager team for its successful missions to that planet. Presenting the trophy, named for Dr. Robert H. Goddard, the father of American rocketry and the developer of the liquid propellant rocket, Carter said, "I want to make clear that I'm determined as President that the United States always maintains its leadership in space exploration. (Defense Daily, Vol. 109, No. 18, Wednesday, March 26, 1980, p 134)

March 27: Teledyne Taber, of North Tonawanda, New York, has won a contract with the John F. Kennedy Space Center to supply pressure transducers.

Under the $34,292 contract, Teledyne will supply 36 of the transducers, which will measure pressure levels in propellant handling equipment used in processing the Space Shuttle for launch. Work under the fixed price contract is to be completed within a 20-week period. (NASA News Release No. 64-80, March 27, 1980)

o Striking security guards and the Wackenhut Corp. agreed Wednesday to reopen negotiations aimed at resolving a two-day strike at the Kennedy Space Center, a union official said.

Al Scholer, president of the United Plant Guard Workers local representing about 150 guards, said the guards modified their demand for "uncapped" cost-of-living pay raises. (Sentinel Star, Thursday, March 27, 1980)

o President Carter, who was to disclose his reductions in the FY '81 budget to NASA and the House HUD-IA Appropriations Subcommittee yesterday, did not do so and the agency's appearance before the subcommittee was cancelled. The subcommittee, which wants the revised figures before considering the non-Shuttle portion of the NASA request, says that it probably will not have time to hold hearings on the remainder of the NASA budget until after April 15, following the congressional recess. The reduction being considered by the President is reported to be between $224 million and $383 million. The $1.873 billion FY '81 R&D request for the Shuttle, as well as the $300 million Shuttle supplemental have been exempted from cuts by the White House. (Defense Daily, Vol. 109, No. 19, Thursday, March 27, 1980, p 142)

March 28: Another major milestone in getting the Space Shuttle Orbiter ready for its first flight was accomplished last week with the installation of the two Orbital Maneuvering System pods on Columbia. All of Columbia's reaction control and maneuvering systems components (the single forward reaction control system module and the two aft orbital maneuvering system pods) have now been installed and integrated tests started. (Spaceport News, Vol. 19, No. 7, March 28, 1980, p 1)

- Validation tests of the slidewire emergency exit system at Launch Complex 39's Pad A were successfully completed recently, according to lead design engineer Glenn Jeffcoat.

  The slidewire provides an escape route for 10 to 15 people aboard the Space Shuttle and on the Orbiter Access Arm until the final 30 seconds of the countdown. (Spaceport News, Vol. 19, No. 7, March 28, 1980, p 1)

- A successful firing for 540 seconds of the three Space Shuttle Main Engines mounted in a main propulsion test article was achieved March 20. This marks the first time two full duration tests of the Shuttle's clustered engines have been successfully run back-to-back. Three of the last four full duration test firings with the main propulsion system have been successful, out of a total of eight cluster tests. (Spaceport News, Vol. 19, No. 7, March 28, 1980, p 1)

- NASA has announced two recent key personnel changes.

  Dr. William C. Schneider, NASA's Associate Administrator for Space Tracking and Data Systems, retired from federal service late last month. He has accepted a position as vice president, Systems Group with Computer Sciences Corporation, Falls Church, Virginia. Dr. Schneider served as Gemini Mission director for seven of the ten manned Gemini missions, and directed Apollo missions 4 through 8. He also served as director of the Skylab program.

  A. Thomas Young has been named director of NASA's Goddard Space Flight Center, succeeding Dr. Robert S. Cooper. Young has been deputy director of NASA's Ames Research Center since 1979. He joined NASA's Langley Research Center in 1961, and while there was mission director for the Viking exploration of Mars, and mission definition manager of the Lunar Orbiter Project. (Spaceport News, Vol. 19, No. 7, March 28, 1980, p 3)

March 31: The Senate Budget Committee threw the outlook for the Space Shuttle into confusion Friday when it voted 7 to 5 for an amendment by Sen. Peter Domenici (R-N.M.) to hold the FY '80 budget for General Science, Space & Technology at the levels set in the second budget resolution--levels which do not include the $300 million in budget authority and $200 million in outlays requested by the Administration as an FY '80 supplemental for the Shuttle.

The scheduled reconsideration of all actions taken on FY '80 supplementals by the 20-member committee could reverse the 7-5 tally against the Shuttle within the committee. (Defense Daily, Vol. 109, No. 21, Monday, March 31, 1980, p 155)

- President Carter is expected today to make a $224 million reduction in the $5.737 billion FY '81 NASA budget he submitted in January, with the $1.873 billion requested for development and production of the Space Shuttle exempted from the cutback. Details of where the money will be cut will be made by NASA; cuts are expected primarily in the $668 million Space Science program. A major portion of the reduction is expected to come from delaying the launch of payloads and experiments planned for the Space Shuttle/Spacelab. (Defense Daily, Vol. 109, No. 21, Monday, March 31, 1980, p 155)

- A planned 360-second static test firing of a Space Shuttle Main Engine March 24 at NSTL was automatically shut down 242 seconds into the test as the engine was going from 100 percent to 109 percent of rated power. Sensors detected vibrations in the low-pressure fuel turbopump and shut the engine down. There was no apparent serious damage. The cause of the vibration has not yet been determined.

  Prior to the test, the total accumlated SSME firing time was 70,551 seconds--with 80,000 seconds required for certification. Of the test firings, 37,738 seconds were at rated power (100 percent) or higher, of which 3272 were on the three-engine Main Propulsion Test Article.

  The eighth in a series of MPTA firings was successfully completed a week ago. The next MPTA test is scheduled for April 10 but may be delayed as a result of Monday's shutdown. (Defense Daily, Vol. 108, No. 21, Monday, March 31, 1980, p 157)

- The Soviet Union launched a Cosmos from Plesetsk on Thursday, March 27, of a type that is believed to be related to space interceptor development or a special monitoring spacecraft in that regime, and a Progress-8 from Baikonur Cosmodrome on a mission to Salyut-6. (Defense Daily, Vol. 109, No. 21, Monday, March 31, 1980, p 160)

April 1: Kennedy Space Center firefighters met Monday in an all-day strategy session in anticipation of a possible walkout at the end of the week.

Their union contract expired at midnight Monday, but negotiations between the firefighters and their employer, Wackenhut Services Inc., are expected to continue today and Thursday.

Federal mediator Richard Deem said he will sit in on talks between the company and the firefighters.

No strike has been set, but the firefighters said they will make a decision by the end of the week to walk out if negotiations fail. (TODAY, Tuesday, April 1, 1980)

o As part of the new $15 billion reduction in the FY '81 Federal budget he submitted in January, President Carter yesterday asked for a $224 million reduction in outlays by NASA in FY '81, trimming the NASA budget to $5,215.6 million.

The action reduces the NASA's budget plan in FY '81 by $219 million to $5,517.7 million.

The $219 million reduction includes $205 million in R&D and $14 million in Research & Program Management. The $120 million Construction request was not changed. (Defense Daily, Vol. 109, No. 22, Tuesday, April 1, 1980, p 162)

o The most probable period for the maiden launch of the Space Shuttle is January-February 1981, based on completing installation of the thermal protection system tiles and rolling the Shuttle Columbia from the Orbiter Processing Facility at the Cape by August 31, NASA Associate Administrator John Yardley told Congress Monday. Currently, the Shuttle is on schedule for a rollout by July 31, which would allow a launch on Nov. 30, the earliest possible launch date. A total of about 4600 tiles have been installed

on the Columbia since Feb. 1, leaving about 8400 to go plus any others which are found deficient and have to be removed and reinstalled. (Defense Daily, Vol. 109, No. 22, Tuesday, April 1, 1980, p 164)

April 2: Dr. R. A. Frosch, NASA Administrator, told a congressional subcommittee March 25 that a "go-no go" on the fifth Space Shuttle Orbiter "will have to be decided in Fiscal Year 1982."

The administrator's statement came in reply to a question from Rep. Edward P. Boland (D-Mass.) of the Subcommittee on HUD-Independent Agencies, House Committee on Appropriations.

Congressman Boland asked, "Do you (NASA) still want five orbiters?" Dr. Frosch answered, "Four orbiters will be marginal and five is more realistic." (Marshall Star, Vol. 20, No. 29, April 2, 1980, p 2)

- NASA Deputy Administrator Alan Lovelace told Congress Monday that the $224 million reduction in its FY '81 budget ordered by the President is "significant...and painful" but "not crippling in any program area and does not constitute permanent losses or changes in our national program." He told the House Space Subcommittee, however, that the reductions "do create increased risks to schedules, costs, and to the potential for loss of valuable scientific data." However, "from an overall perspective, I believe they reflect the best possible set of near-term spending reductions in support of the President's anti-inflation program," he said. (Defense Daily, Vol. 109, No. 23, Wednesday, April 2, 1980, p 175)

- Progress-8, the unmanned cargo spacecraft launched from Baikonur Cosmodrome at 11:53 PM launch complex time March 27, linked up with the Salyut-6 space station at 1:01 AM March 30, Baikonur complex time, docking with the station's equipment compartment. (Defense Daily, Vol. 109, No. 23, Wednesday, April 2, 1980, p 175)

April 3: NASA has announced that its Langley Research Center has issued RFP's for a nine-month design study of alternate thermal protection system concepts for the Space Shuttle Orbiter, but said that the study will not affect the present Orbiter vehicles. The study will include metallic and reinforced carbon-carbon thermal protection systems, which are considered the optimum alternatives. The agency is looking to reduce the cost of the TPS and to provide the best possible system. Proposals for the $900,000 study are due April 28. (Defense Daily, Vol. 109, No. 24, Thursday, April 3, 1980, p 180)

- The Space Shuttle Main Engine #2004 Monday completed 360 seconds at 109 percent rated power level for 360 seconds and a total running time of 610 seconds at the National Space Technology Laboratories. This is the same engine that shut down on March 17 due to a vibration in a low pressure fuel turbo pump. In the latest test a new turbo pump was installed. After ignition of the engine, power was first raised to 100 percent of rated power level for 240 seconds. It was then increased at the rate of 1 percent a second until the 109 percent rate was reached, where it remained for 360 seconds before throttling down for a total of 610 seconds. In a March 13 test, the engine was tested at 109 percent of rated power for the first time in a 125-second run, staying at 109 percent for 10 seconds. (Defense Daily, Vol. 109, No. 24, Thursday, April 3, 1980, p 180)

- NASA's John F. Kennedy Space Center has awarded a $92,800 contract to Material Handling Systems, Inc., of Hollywood, Fla., for the procurement of a hoisting system to be used on the Space Shuttle's solid rocket boosters. (NASA News Release No. 66-80, April 3, 1980)

- NASA's John F. Kennedy Space Center has announced the award of a $1,146,090 contract to the Holloway Corporation of Titusville, Fla., for the fabrication of power systems equipment. (NASA News Release No. 65-80, April 3, 1980)

April 4: NASA Deputy Administrator Alan Lovelace told the Senate Space Subcommittee yesterday that the European Space Agency has not yet made a commitment to continue with the joint International Solar Polar Mission (ISPM) project -- which the Administration has delayed with its revised FY '81 NASA budget -- but he said that he does not think they will pull out.

ESA is providing one of the two Shuttle-launched spacecraft for the solar mission. If they do decide to withdraw, Lovelace said, then NASA will have to restructure the program. (Defense Daily, Vol. 109, No. 25, Friday, April 4, 1980, p 185)

- The lone increase in the President's revised budget for NASA -- $30 million for Landsat-D -- is necessary to overcome development and integration problems the spacecraft system has incurred and to try to keep the program on schedule, but was offset by deletion of the $16 million originally included to initiate an Operational Land Observing System, starting with the Landsat-D backup satellite.

  As a result, the planned launch date for that spacecraft has been delayed from 1985 to 1986. Improvements are to be added to the satellite to make it the prototype of the new operational Land Observing Satellite.

  At the same time, even with the additional $30 million, NASA does not believe it can meet the September 1981 launch scheduled for Landsat-D and says there is some chance that the remaining Landsat satellite, Landsat-3, will cease functioning before it can launch the new satellite. NASA is looking at possible options for launching Landsat-D so that continuity of Landsat data can be maintained for users.

  Development problems on Landsat-D center on the Thematic Mapper and the ground image processing system. (Defense Daily, Vol. 109, No. 25, Friday, April 4, 1980, p 187)

- Technology for television transmission by Direct Broadcast Satellites has been demonstrated and operational systems will be used around the world before 1990, according to a study conducted for the FCC by a special staff study group. (Defense Daily, Vol. 109, No. 25, Friday, April 4, 1980, p 188)

- A Political Action Committee (PAC) has been formed by an associate of space colony advocate Prof. Gerard K. O'Neill to support the election to Congress of people who support the space program and to oppose those who do not.

  The committee, the Washington, D.C.-based "Campaign for Space," is headed by Dr. David Webb, who is vice president of Princeton University's Space Studies Institute, which is headed by O'Neill.

Webb said that the committee is not just interested in pushing for space colonies but believes in a strong overall space program. (Defense Daily, Vol. 109, No. 25, Friday, April 4, 1980, p 189)

April 6: Two labor disputes at the Kennedy Space Center came to a crossroads Saturday when one strike was settled and the other apparently averted.

Striking security guards, after a morning of deliberations and arguments, voted 104 to 31 to ratify a contract with Wackenhut Services Inc. They are expected to return to work at 10 o'clock tonight.

Meanwhile, about 62 KSC firefighters and inspectors who were expected to begin their strike Saturday afternoon, agreed to postpone any walkout until after negotiations Thursday, said Harold Gooch NASA chief of labor relations. (TODAY, Sunday, April 6, 1980)

April 7: "People around here call this The Hobby Shop," said Bob Newall, wincing as he spoke. "And the people who work here resent that.

"We got a machinist out here who says, 'My hearing gets real bad when someone comes in here and calls this The Hobby Shop. I can't hardly hear a thing he says after that.'"

Newall was talking about Kennedy Space Center's Development Test Facility, of which he is the branch chief. The people who do developmental testing build prototypes -- which some people call models. Newall isn't exactly fond of the word model though.

"Developmental testing doesn't mean model making," Newall said. "It means we manufacture prototype hardware for various functions going on at the Cape."

Like scale mock-ups of the Space Shuttle for tourists to gawk at in the Visitors Information Center or for display on television. Or a transparent facsimile of the Vehicle Assembly Building. Or a scaled-down version of various equipment used to load Shuttle cargo. (TODAY, Monday, April 7, 1980)

- Viking mission activities with the No. 2 Lander on Mars have come to an end after more than 3-1/2 years of operation on the Martian surface. Controllers at the Jet Propulsion Laboratory said the Lander's last transmission in March was unintelligible, apparently due to the low output of the spacecraft's batteries. The original mission goal was for an operational period of at least 90 days following its touchdown on the planet in September, 1976. Viking Lander 1 still is continuing some limited operations, as is Viking Orbiter 1. Orbiter 2 become unusable in 1978 when its propellant gas supplies were exhausted. (Aviation Week & Space Technology, Vol. 112, No. 14, April 7, 1980, p 23)

- Space shuttle checkout team here is nearing several key power-on tests that should clear the way for transfer of the orbiter Columbia to the Vehicle Assembly Building for stacking immediately after thermal protection tile work on the spacecraft is completed this summer.

  Changes by Rockwell International to tile load requirements continue to hamper the tile application here but tile application rates are high enough to encourage optimism on completion of that work as planned no later than about July 31. First launch by February or March, 1981, is viewed as a realistic schedule.

  Power-on systems hardware and test work are in the home stretch toward first launch and the extensive Cape Canaveral activity is reaching a point reminiscent of the several months preceding launch of the first Saturn 5 when new hardware was undergoing final checkout.

  A significant difference between Saturn 5 and the shuttle, however, is that the vehicle system performance is much more mature at this state of preparation than was the Apollo hardware this close to launch, even though the shuttle is far more complex. (Aviation Week & Space Technology, Vol. 112, No. 14, April 7, 1980, p 39)

April 8: The new type Soviet reconnaissance/surveillance satellite missile, Cosmos 1170, launched on April 1, into a high-resolution, high-inclination regime of 70.4 degrees was not, as first reported, launched from Plesetsk. In a rare maneuver for that cosmodrome, the mission was sent into orbit from Balkonur at Tyuratam. (Defense Daily, Vol. 109, No. 27, Tuesday, April 8, 1980, p 199)

o Eight men aged 55 to 65 will undergo ten days of bedrest at NASA-Ames this month to simulate the weightless environment of space and to evaluate their ability to stand the physiological stress of space flight. The test subjects are the oldest NASA has subjected to the simulated space flight stress tests. Women aged 55 to 65 will be tested later this year. (Defense Daily, Vol. 109, No. 27, Tuesday, April 8, 1980, p 201)

April 10: The Soviet Union has launched 20 space missions in 1980; the U.S. has launched 5. Sixteen of the Soviet flights, or 80 percent have been military missions, four of the U.S. missions have been military oriented. (Defense Daily, Vol. 109, No. 29, Thursday, April 10, 1980 p 213)

o NASA says that the major goals of its RFP for a design study of alternate thermal protection systems for the Shuttle Orbiter are to "reduce the costs of the Orbiter's TPS and to determine the best available system, whether it is the present one or an alternative one...The new study will bring into focus any recent technological advances in reusable surface installations."

NASA says the study will include evaluation of such types of TPS as "metallic and reinforced carbon/carbon concepts, which are considered probable alternatives.

The study will assess potential benefits and problems that might result from alternate thermal protection concepts; establish guidelines to cope with varied loading conditions and handling, inspection and maintenance; and identify deficiencies in present technology that may require further R&D." (Defense Daily, Vol. 109, No. 29, Thursday, April 10, 1980, p 216)

April 11: A Space shuttle main engine reached milestone in a static firing at NASA's facility in Mississippi last week with a 10 minute firing at up to 109 percent of its rated power.

This was the first time that a Space Shuttle Main Engine (SSME) had been run for an extended time at the full power level. The test firing lasted for 610 seconds, of which 360 seconds were spent at the high thrust point.

The SSME has a normal thrust level of about 470,000 pounds, but can be throttled to higher levels if needed. Some cargo configurations planned for the Shuttle will require boost thrusts of 102 percent to reach orbit, and the 109 percent level may be needed in certain emergency abort conditions. Most missions will be flown at the rated, or 100 percent, thrust level.

The successful test last week was a repeat of a test on March 24, when the engine was shut down automatically due to vibrations sensed in the engine's low pressure fuel pump. No design changes were needed to correct the vibrations, and the test was successfully run March 31.

The engine used in the test had already accumulated more than 10,000 seconds of running time, the equivalent of about 19 Shuttle flights. The engine has undergone two certification firing series, each of 5,000 seconds. (Spaceport News, Vol. 19, No. 8, April 11, 1980, p 1 & 2)

o The annual Contractor Safety Awards Ceremony was held recently with 15 awards for on-the-job safety presented by Center Director Richard Smith to 12 organizations. The awards were separated into three categories, recognizing different levels of safety performance.

Accident prevention certificates honored those contractors who had no lost-time injuries in the calendar year 1979. These were presented to: Bionetics Corporation, Boeing Aerospace Co., Expedient Services, IBM-Cargo Integration Test Equipment, IBM-Launch Processing Systems, Martin Marietta-Sold Rocket Booster Decelerator Subsystems, Pan Am Occupational Medicine & Environmental Health Services and TRW DDSG.

Safety Awards of Distinction were presented to those contractors whose lost-time injury and accident rate was lower than the average for participating contractors. Those honored were: BSI, Supply & Transportation Services and Planning Research Corp.

The Center Director's Award for safety is the highest obtainable and is presented to contractors with no lost-time accidents or vehicle accidents. Recipients of this award were: Martin Marietta-CCMS Project and Martin Marietta-External Tank Operations.

Contractors absent from the ceremony but receiving awards included the Bionetics Corp., which received the Accident Prevention Certificate and the Center Director's Award and Mercury Engineering, Chimex Systems and Honeywell Information Systems, all receiving Accident Prevention Certificates. (Spaceport News, Vol. 19, No. 8, April 11, 1980, p 5)

o From its beginning in the Mercury Redstone Project, the Aerospace Awareness Program has been used to communicate to NASA and industry employees the fact that they are working on critical hardware for man-rated vehicles carrying our nation's astronauts into space.

Today, in the Space Shuttle era, it is more important than ever that everyone put forth maximum effort to ensure that design and performance criteria are met. The ever-increasing need for constant awareness in the areas of higher performance, workmanship, and productivity demands a dedicated, concerted effort by KSC contractors and NASA to implement an extensive awareness/motivation program.

Contractors Aerospace Awareness Panel

Expedient Services, Inc. (ESI)	John Bounous, Chairman
Unified Services, Inc. (USI)	John McManus, Vice Chairman
Rockwell International (RI)	Jane Beech, Recording Secretary

Membership Roster

Bionetics Corporation (TBC)	Woody Tramel
Boeing Services International (BSI)	Vern Everson
Computer Sciences Corporation (CSC)	Johnny Richards
International Business Machines (IBM)	Clarisse Mims
Management Services, Inc. (MSI)	Ed Schofield
Martin Marietta Aerospace (MMC)	Bill Goodwin
McDonnell Douglas Technical Services Co. (MDTSCO-SCD)	Bill Webb
McGregor & Werner (M&W)	Nelvin Coupe
NASA/KSC Representative (PA-EAB)	George Gnann
New World Services, Inc. (NWSI)	Catherine Nail
Planning Research Corporation (PRC)	Janet Bonder
Rocketdyne (ROC)	George W. Coxwell
United Space Boosters, Inc.	Charles Cundiff
Wackenhut Services, Inc.	John Flanagan

(Spaceport News, Vol. 19, No. 8, April 11, 1980, p 3)

o The pallets that will hold the experiments carried on the Space Shuttle's second and fourth flights were built by the European Space Agency. However, when the U-shaped structures were delivered to KSC, the systems that provide thermal control, electrical power and that command and acquire data from the sophisticated experiments were not included.

That job, of outfitting the pallets with those essential systems and then checking them out to make sure they work, belonged to McDonnell Douglas Technical Services Company--Shuttle Cargo Division (MDTSCO-SCD).

Recently, MDTSCO completed staging and checkout of the pallets and turned them over to the NASA Centers that will direct experiment integration--the Johnson Space Center for the OSTA-1 payload, and the Goddard Space Center for the OSS-1 package.

OSTA-1, which will fly on Shuttle flight No. 2, will carry out investigations for geological, oceanographic and agricultural purposes. OSS-1 will fly on the Shuttle's fourth flight and provide early demonstrations and verification of the Shuttle's capabilities in space science, applications and technology.

Project Manager G. R. Faenza did point out some key personnel who directed critical areas of staging and checkout.

Among those were Jim Scofield, chief of Technical Operations, Structural/ Mechanical Engineering Chief Bob Gunn and Paul Elliott, manager of Assembly and Test activities. Heading up the Safety and Reliability effort was Johnny Daubs, and Johnny Outing and Nate Jones directed Logistics support. Two MDTSCO employees, Sanford Proveaux and Hargis Branham, earned Silver Snoopy Awards for their work on the pallets.

But KSC's MDTSCO team was not the only McDonnell Douglas people working on the pallets. Pushed by tight time requirements, MDTSCO drew from the talents and resources of McDonnell Douglas Astronautics Co. (MDAC) employees from around the country. People were pulled in from MDAC's Delta team at Complex 17 and its TICO Plant in Titusville, as well as from the MDTSCO group in Huntsville, and MDTSCO's main office in Huntington Beach, California.

"It was a major team effort," said Faenza, and the result was the on-schedule transformation of a bare, metal structure into flight hardware capable of controlling, cooling and providing power to experiments that will be among the first carried into space by the Shuttle. (Spaceport News, Vol. 19, No. 8, April 11, 1980, p 4)

o The General Service Administration Motor Pool at KSC was recently selected to help conduct tests of one type of electric vehicle through life cycles which could last for up to six years. GSA has received two of the battery-powered vans for KSC use and three more of this type are being tested by the GSA in Denver.

The test is part of an Electric/Hybrid Vehicle Program being conducted under the auspices of the U. S. Department of Energy to reduce the importation of petroleum.

The objective of the demonstration project is to identify, test and prove market sectors where electric vehicles can perform functions now accomplished by petroleum-fueled vehicles and establish the support structures necessary to support those markets. (NASA News Release No. 68-80, April 11, 1980)

- The Kissimmee Spring Water Company, of Kissimmee, Fla., has won a contract with NASA's John F. Kennedy Space Center to supply purified water for the Center's drinking fountains.

  The contract, estimated at $128,079, calls for over 17,000 five-gallon bottles of purified drinking water, to be distributed at remote locations throughout the space center where tap water is unavailable. (NASA News Release No. 70-80, April 11, 1980)

- Technology and performance goals set by NASA for a follow-on propulsion system for Earth-To-Orbit Space Shuttle vehicles calls for at least a 500-mission life with 100 hours of engine operation between major overhauls, along with a 10 to 15 percent increase in performance over the Space Shuttle Main Engine. Work will be initiated in FY '81 on technology for extending the life and performance of high-speed engine turbomachinery. Work to date has centered on increasing the life and performance of combustion devices. (Defense Daily, Vol. 109, No. 30, Friday, April 11, 1980, p 223)

April 14: The Bionetics Corporation, of Hampton, Va., has been awarded a $1,903,026 contract extension for reference standards services and the calibration of instruments at NASA's John F. Kennedy Space Center.

Bionetics, a small business firm, has the task of maintaining KSC measurement standards and calibrating all center test equipment, assuring the accuracy of measurements during KSC operations.

The cost-plus-fixed-fee contract extension covers the period May 1, 1980, through April 30, 1981 and brings the total value of the contract since it was initiated in 1976 to $6,474,882. (NASA News Release No. 71-80, April 14, 1980)

o New World Services, Inc., of Orlando, Fla., has won a contract for the operation of the library at NASA's John F. Kennedy Space Center.

Under the $311,625 contract, New World Services will be responsible for the operation of the technical and reference library at KSC for the period from April 1, 1980, to March 31, 1981. The fixed price contract is one set-aside for award to a small business firm. (NASA News Release No. 72-80, April 14, 1980)

April 15: Eluding federal security guards, two armed bandits pulled the first robbery in the history of the Kennedy Space Center on Monday when they held up a KSC filling station and escaped with $1,300 cash.

The robbers, driving a blue Chevy van and armed with a .38-caliber pistol, held up the station at noon. A flustered attendant fumbled for 15 minutes to notify National Aeronautics and Space Administration security guards while the two thieves made their getaway.

NASA officials said it was the first armed robbery at the spaceport.

The bandits threatened Mike Hornak, 22, at gunpoint, then seized a cash box lying on one of the gasoline pumps. When the robbers drove away, Hornak tried to contact security officers, but reached a wrong number.

"It was his first day on the job," Harris said, "He didn't know who to call." (Sentinel Star, April 15, 1980, p C1)

o Soyuz 35 cosmonauts, commander, Lt. Col. Leonid Popov, and flight engineer Valeriy Ryumin, joining up with the Salyut 6 space station last week, found the station ready for occupancy.

Ryumin, who spent a record 175 days aboard the craft last year, reported it "absolutely in the same condition as we left it."

Soyuz 35 docked with Salyut 6 at 8:16 PM April 10, Baikonur Cosmodrome time, 25 hours and 38 minutes after launch from the Tyuratam-Leninsk complex. (Defense Daily, Vol. 109, No. 31, Monday, April 14, 1980, p 228)

- The Soviet Union Saturday launched another in a series of launch detection early warning satellites. Identified as Cosmos 1172, the spacecraft was launched from Plesetsk into an orbit of 637/40,160 kilometers, 62.3 degrees, 12 hours 6 minutes. The spacecraft, which is possibly a backup to Cosmos 1164, another early warning satellite launched on Feb. 12, which may have malfunctioned, was launched with an SL-6 booster system. (Defense Daily, Vol. 109, No. 32, Tuesday, April 15, 1980, p 236)

- Cosmos 1170, launched into a new high-resolution reconnaissance/surveillance regime on April 1, in a rare high-inclination maneuver from Baikonur Cosmodrome instead of from Plesetsk, was returned over the weekend after the usual 13-day mission. (Defense Daily, Vol. 109, No. 32, Tuesday, April 15, 1980, p 236)

- Analysis of the Voyager 1 and 2 photographs of Jupiter and its moons has confirmed that Ganymede, the largest moon of Jupiter, is larger than the planet Mercury.

  According to Rand Corp. analysis, the diameter of Ganymede is 3278 miles ± 12 miles, which compares to the 3100-mile diameter of Mercury. Ganymede may also be larger than the planet Pluto, whose diameter has recently been estimated at about 3000 miles. The Jovian moon, however, is not the largest moon in the solar system. That distinction goes to Saturn's moon Titan, whose diameter is estimated at 3624 miles.

  The following are the latest estimates of the diameters of Jupiter's largest four moons, compared to estimates made last year and in 1976:

	Current	1979	1976
Ganymede	3278 ± 12	3241	3160
Callisto	2994 ± 12	3039	3000
Io	2256 ± 6	2259	2180
Europa	1942 ± 12	1905	1830

  (Defense Daily, Vol. 109, No. 32, Tuesday, April 15, 1980, p 241)

April 17: A Space Shuttle engine test in Bay St. Louis, Miss., was automatically shut down Wednesday when a turbo pump on one of the three engines overheated.

The test, scheduled to run 591 seconds, was stopped after about five seconds when a sensor detected the overheating.

A small fire in an engine nozzle was quickly extinguished. Engineers said there wasn't any extensive damage to either the engine or the test stand. (TODAY, Thursday, April 17, 1980)

- Calling their suspensions "Wackenhut's vacation," Kennedy Space Center firefighters overwhelmingly ratified their contract with the company Wednesday by a 58-2 vote.

  Some of the 41 firefighters suspended without pay for their participation in a wildcat strike last month said they have accepted the discipline and voted for what they called a good wage agreement. (TODAY, Thursday, April 17, 1981)

- Modular Computer Systems, Inc., of Fort Lauderdale, Fla., has won a contract with NASA's John F. Kennedy Space Center for the procurement of computer equipment.

  Under the $88,074 contract, ModCom will supply 12-back-up memory units which will support the Spaceport's Launch Processing System. The units will be used specifically in the Checkout, Control & Monitor Subsystem (CCMS), which is responsible for testing and monitoring the Space Shuttle as it is prepared for launch. The CCMS continuously monitors such systems as fuel supply, ignition, flight control and life support, testing them and ensuring their readiness for actual flight. (NASA News Release No. 74-80, April 17, 1980)

- The House Science & Technology Committee unanimously adopted by voice vote yesterday the $5,622,154 FY '81 authorization for NASA that had been recommended by its subcommittees.

  At the same time, the committee voted 30 to 1 with 1 abstention for the $300 million FY '80 supplemental for NASA for the Space Shuttle. Rep. Harold Volkmer (D-Mo.) voted no by proxy. Rep. Richard Ottinger (D-N.Y.) voted present.

The FY '81 authorization approved by the committee is $114.5 million below the President's original budget request for NASA, but $104.5 million above the revised budget submitted by the White House. (Defense Daily, Vol. 109, No. 34, Thursday, April 17, 1980, p 251)

- Space Shuttle Main Engine #2004 was successfully test fired for 610 seconds at the National Space Technology Laboratories Monday, including 360 seconds at 109 percent of rated power. The test brings the firing time of the engine to over 71,000 seconds, with 80,000 seconds required for certification. A firing of the three-engine SSME cluster is being readied at NSTL. (Defense Daily, Vol. 109, No. 34, Thursday, April 17, 1980, p 255)

- Richard G. Smith, director of NASA's Kennedy Space Center since September, will address the National Space Club at a luncheon meeting April 24 at the Rayburn House Office Building. (Defense Daily, Vol. 109, No. 34, Thursday, April 17, 1980, p 255)

April 18: Plans to double the cost of the most popular space payload yet offered is forcing buyers to ask for relief and NASA to rethink its pricing policy.

The Getaway Specials, small self-contained Space Shuttle payloads, are to jump in price from $10,000 to $19,000 for the largest and from $3,000 to $6,000 for the smallest.

The National Aeronautics and Space Administration says this is meant to cover inflation, but many buyers--civic clubs, schools, and individuals--may have to drop their flight plans if this goes into effect. (Times Science, Sunday, April 18, 1980)

April 21: New World Construction, Inc., of Titusville, Fla., has been awarded a contract with NASA's John F. Kennedy Space Center for repairs to the roof of the Launch Control Center at Complex 39.

Under the $344,807 contract, New World will remove and replace the LCC's existing roof as well as apply a latex-type waterproof coating to protect the building's sensitive computer equipment from moisture. (NASA News Release No. 76-80, April 21, 1980)

o Tubesales Inc., of Forest Park, Ga., has won a contract with NASA's John F. Kennedy Space Center for the manufacture of steel tubing.

Under the $252,760 contract, Tubesales will supply 156,000 linear feet of a specially designed corrosion-resistant steel tubing in various sizes. The tubing will be used primarily for high pressure gas and vent lines at Launch Complex 39's Pad B.

Upon its completion in 1982, Pad B will be used jointly with Pad A - already functional - as a launch site for the Space Shuttle.

Both Complex 39 launch pads were used for space operations during Project Apollo and the Skylab program and are being modified for long-term roles in the Space Shuttle Program. (NASA News Release No. 77-80, April 21, 1980)

o Indicating that he is not satisfied with the manner in which the FY '81 NASA budget was revised nor with the size of the reduction, Chairman Edward P. Boland (D-Mass.) of the House HUD-1A Appropriations Subcommittee sounded out NASA Friday about the possibility of cancelling the International Solar Polar Mission (ISPM) and delaying such programs as the Space Telescope and Gamma Ray Observatory.

NASA Administrator Dr. Robert Frosch opposed all of the changes suggested by Boland, explaining his reasons on a case by case basis, and concluded the hearing by urging that the revised NASA budget not be reduced any further. (Defense Daily, Vol. 109, No. 36, Monday, April 21, 1980, p 266)

o The Soviet antisatellite flight test that had been anticipated for almost three weeks was unsuccessfully carried out Friday, April 18.

Cosmos 1174, the space interceptor, was launched against the target vehicle, Cosmos 1171, launched 15 days earlier, but failed to complete a successful intercept pass. (Defense Daily, Vol. 109, No. 36, Monday, April 21, 1980, p 264)

- The Air Force now estimates that the cost of completing construction of the Space Shuttle launch pad at Vandenberg AFB will be $200 million, up from the $118 million estimate made three years ago. It attributes the cost increase primarily to inflation. The Air Force reestimated the construction costs after industry proposals for the second phase of the construction effort were a minimum of $24 million over the Air Force estimate of $80 million. Air Force is expected to seek a reprogramming to keep the Shuttle pad on schedule. (Defense Daily, Vol. 109, No. 36, Monday, April 21, 1980, p 269)

- The Soviet space interceptor failure Friday was apparently due to a guidance failure. The intercept attempt by Cosmos 1174 was made on the first orbit. The interceptor and target remained in orbit. (Defense Daily, Vol. 109, No. 36, Monday, April 21, 1980, p 271)

April 22: ESA and the French Space Agency are proceeding toward the second launch of the Ariane launch vehicle from Kourou, French, Guiana, on May 20, which will mark the first launch of spacecraft by the largely French-built vehicle. The Ariane carried a monitoring capsule rather than a satellite on its successful first mission four months ago.

Ariane LO-2 will orbit the Firewheel satellite, built by the Max Plank Institute of Germany to study the magnetosphere, and Oscar 9, a spacecraft designed by the German Branch of the Radio Amateur Satellite Corp. for use by amateur radio users.

The three stages of the LO-2 were erected at Kourou this month, with the equipment bay positioned on April 15. (Defense Daily, Vol. 109, No. 37, Tuesday, April 22, 1980, p 277)

April 23: Space Shuttle Main Engine No. 2004, being tested at NASA's test facility in Mississippi, has now been static fired a total of 3 hours and 35 minutes (12,911 seconds) without major overhaul. This is the equivalent of about 25 flights of the Space Shuttle.

This plateau was reached late last Saturday night when the engine was static fired for 10 minutes and 10 seconds. During six minutes of this time, the engine ran at the 109 percent full power level, simulating power levels necessary for an abort to orbit during a Shuttle launch.

The Saturday test ended a series of three 10-minute static firings for full power level abort certification. The first test occurred on March 31 and the second on April 14. (Marshall Star, Vol. 20, No. 2, April 23, 1980, p 1)

- NASA has issued a $70,072,000 follow-on, fixed price-incentive contract to the McDonnell Douglas Astronautics Co., Huntington Beach, California, for Delta expendable launch vehicle services.

  The contract calls for continuation for two years of launch services work performed by the company for the past 19 years for Delta, including mission-peculiar vehicle changes, checkout and launch.

  The services will be performed at the McDonnell Douglas plant in Huntington Beach, and at the Eastern Space and Missile Center, Fla., and Vandenberg AFB, Calif., launch sites.

  To date, the Delta has been used to launch 151 weather, communications and scientific satellites, both foreign and domestic, government and commercial, of which 140 were successful. (NASA News Release No. 80-53, April 23, 1980)

- NASA plans to use a 36-inch-diameter telescope on its C-141 aircraft to study the performance of the Space Shuttle Orbiter's Thermal Protection System tiles as the Orbiter reenters the Earth's atmosphere.

  This will provide the first actual analysis of air friction on a returning spacecraft and may allow NASA to reduce the weight of the TPS by "several thousand pounds," according to Martin Marietta's Denver Division, which is providing the measurement device, known as IRIS (Infrared Imaging of Shuttle). Previous reentry heating data has been based on wind tunnel simulations.

  An IRIS tracking device mounted on the telescope will locate the Shuttle during its high speed reentry and trigger the recording instruments in the aircraft, which have only a fraction of a second to gather data. (Defense Daily, Vol. 109, No. 39, Wednesday, April 23, 1980, p 282)

April 24: More than 200 officials from 21 countries are expected to attend the international colloquium on the "Economic Effects of Space and Other Advanced Technologies" to be held April 28-30 in Strasbourg, France, under the sponsorship of the European Space Agency and the Louis Pasteur University under the aegis of the Parliamentary Assembly of the Council of Europe. Among the topics to be discussed are the impact of NASA R&D expenditures on technological innovation and the economy (Dr. Henry R. Hertzfeld, NASA-Headquarters); the economic effects of ESA contracts; the economic potential of a European space program in the 1980's; the need for large-scale initiatives (Dr. Klaus P. Heiss, ECON Inc.), and the importance of space activities within a diversified industrial group (Matra). (Defense Daily, Vol. 109, No. 39, Thursday, April 24, 1980, p 291)

April 25: The appointment of Joseph Malaga to the newly-created position of Comptroller, and the establishment of a directorate of Center Support Operations headed by William Lohse, was announced recently by KSC Director Richard Smith. "These two changes to the KSC Organization," said Smith, "will enable Center management to make those decisions required to assure orderly transition into the operational phase of Shuttle."

As Comptroller, Malaga will serve as the principle advisor to the Center Director on matters of integrated funding for planning, strategy development, and policy recommendations regarding agency and Center resources. Malaga will also have the responsibility of providing an independent analysis of and the formal Center overview for resources activities to achieve the balanced and effective use of all funds, including program and institutional resources, and the execution of Center level decisions. The office will include resources and financial activities as well as other selected functions.

Prior to this appointment, Malaga was Director of Administration and Management Operations, a position he held since January 1976. Dallas Gillespie, who held the position of Chief of the Resources Management Office, will be the Deputy Comptroller.

The Directorate of Center Support Operations, under Lohse, will replace the Directorate of Administration and Management Operations. The functions of procurement, supply and transportation, and Center support fall under the new directorate and will continue without change. Selected activities of an institutional nature will also be moved into this directorate in keeping with the Center's long-range objectives of self-sufficiency for element contractors in the operational Shuttle era.

Lohse had been the Director, Procurement, Supply and Transportation since February 1976. Robert Long, previously the Director, Administrative Operations and Support Services, will serve as the Deputy Director of the Center Support Operations Directorate. (Spaceport News, Vol. 19, No. 9, April 25, 1980, p 1-2)

o A fact finding team from the Nuclear Regulatory Commission, headed by Commissioner Joseph Hendrie, visited KSC recently to discuss ways that design techniques and operation procedures developed here to launch and process rockets might be put to use to assure the safe construction and operation of nuclear power plants.

The four-member group consisting of Commissioner Hendrie, Ron Satterfield, Voss Moore and Dominic Tondi, spent two days here listening to detailed briefings on virtually all aspects of Center activities. Design Engineering Deputy Henry Paul presented the group with a Center overview, followed by briefings on the Launch Processing System by Terry Greenfield and Bill Bailey; KSC operations by Roy Lealman; the Complex Control System by Lewis Boyd (BSI); and design techniques and system assurance by Don Page.

Hendrie said in an interview following the two-day visit, that KSC is using various procedures and systems that show potential for use in the nuclear industry. Control room technology is one example.

Similarly for the nuclear industry and the space program, there is a central place--the control room, or firing room as KSC calls it--where all critical systems are monitored and controlled; whether it's a system to keep watch on temperatures in a cooling tower or to monitor pressures when loading propellants aboard a space vehicle. In both cases, handling hazardous materials in a highly-reliable manner is essential. (Spaceport News, Vol. 19, No. 9, April 25, 1980, p 3)

April 28: Space shuttle launch delays have cost the commercial communications satellite industry on the order of $0.5 billion due largely to the need of some satellite systems to use more costly expendable boosters to meet previously set launch schedules, according to industry officials.

Shuttle delays have caused reassessment of launch plans for a large, 14-ft.-dia. communications satellite for military use that is capable of being launched only by the shuttle. In addition, shuttle schedule slips are partially responsible for the current doubling of the production rate

of McDonnell Douglas Delta expendable boosters and development of the upgraded Delta model 3920--despite some resistance from the National Aeronautics and Space Administration.

Clay T. Whitehead, president of Hughes Communications, Inc., a subsidiary of Hughes aircraft Co., said the industry is upset over shuttle schedule uncertainties because companies do not know whether they will have to pay for a shuttle or an expendable booster launch. (Aviation Week & Space Technology, Vol. 112, No. 17, April 28, 1980, p 18)

- Soviet antisatellite test flown Apr. 18 will intensify Defense Dept. and congressional pressure on the Carter Administration to decide upon deployment of a U.S. antisatellite system, a decision the President has been delaying pending the course of currently stalled antisatellite limitation talks with the USSR.

Russian killer satellite Cosmos 1,174 exploded in space April 20, two days after failing to make an accurate intercept of its Cosmos 1171 target. The deliberate explosion is like those commanded by the Soviets on several previous antisatellite missions, when they desired to test the vehicle's shrapnel kill mechanism well away from the target satellite. (Aviation Week & Space Technology, Vol. 112, No. 17, April 28, 1980, p 20)

May 1: The James A. Oberlin firm of Maitland, Fla., has won a contract to modify heating and air conditioning systems in major spacecraft assembly and checkout buildings here. The modifications are expected to save significant amounts of energy compared to the existing system.

Under the $726,000 fixed-price contract, Oberlin will modify intake air mixing boxes, ductwork and some air conditioning controls in the Operations and Checkout Building in the industrial area of the space center. The building is used for the assembly and checkout of such large Space Shuttle payloads as the European Space Agency's Spacelab. (NASA News Release No. 82-80)

o "I hoped to appear here today and tell you that the Shuttle had flown, but I'll do that next year," said John Yardley, NASA's associate administrator, at Wednesday's Space Congress.

Yardley's mood of apologetic optimism was shared by most of those who spoke at the Cocoa Beach Symposium on the status of the Space Shuttle - now more than two years behind schedule.

"The (spaceship) Columbia is having the same problems that all the vehicles of this complexity had," Yardley said. "There are one or two big problems, and we have a lot of small problems. And believe me, the small problems are taking just as much time as the big problems . . . I'm not sure we have enough engineers to get this thing certified in time to fly it. The progress is not as fast as I'd like to have it, but it is steady," he said. (TODAY, Thursday, May 1, 1980)

o As a commercial venture, the space shuttle probably won't begin breaking even until 1985, a high-ranking NASA official said Wednesday at the 17th Space Congress.

Chester Lee, head of Space Transportation System Utilization, said the space agency will lose millions of dollars during the first 40 flights flown by the orbiter. The shuttle won't begin making money until its fourth year of operation, when rates escalate for commercial and foreign customers, Lee said. (Sentinel Star, Thursday, May 1, 1980)

May 2: The three main engines of the Space Shuttle Columbia, now at Kennedy Space Center, will be shipped back to Mississippi for retesting, a precaution that should not affect the timing of the Shuttle's first launch, NASA officials say.

Officials Thursday announced the decision to send the engines back to the National Space Technology Laboratories at Bay St. Louis, Miss. for "reacceptance firings" that should take three months to complete.

They hastened to reassure members of congressional science committees that the additional tests would not mean another delay in the Shuttle's maiden run into outer space, now scheduled between this November and next March. (TODAY, Friday, May 2, 1980)

o The Soviet Union has launched a new spy satellite into space, apparently equipped to monitor U.S. ship movements in the troubled Persian Gulf region, American officials said Thursday.

Administration sources, confirming the launch from an undisclosed site, said a complaint would be registered with the United Nations Outer Space Committee where the Soviets have stymied efforts by the United States to reach an international agreement concerning reconnaissance satellites.

The satellite, launched Tuesday, is a twin of the one carrying a nuclear reactor that crashed in Canada. (TODAY, Friday, May 2, 1980)

o Beech Aircraft Corporation, of Boulder, Colo., has been awarded a $2,504,750 contract to furnish a fuel cell servicing system to support launch operations at Vandenberg Air Force Base in Lompoc, Calif. (NASA News Release No. 79-80, May 2, 1980)

o NASA's John F. Kennedy Space Center has awarded a contract to Atlantic Technical Services, of Longwood, Fla., to provide mail services.

Under the $755,000 contract, Atlantic Technical Services will be responsible for the operation of the postal and in-house distribution services for the entire space center. (NASA News Release No. 80-80, May 2, 1980)

o NASA has decided to retest the three Space Shuttle Main Engines for the Space Shuttle Orbiter Columbia because of the number of modifications that have been made to the engines since they were acceptance tested in April-July 1979. The agency said the decision to ship the engines from Kennedy back to the National Space Technology Laboratories will not affect the schedule for the launch of the Columbia, planned between Nov. 30, 1980, and March 31, 1981. The three engines will be shipped individually to NSTL in the near future, where they are currently scheduled to undergo one long mated test. After being returned to KSC and installed in the Columbia, the engines are scheduled to be test fired for 20 seconds on the pad about six weeks prior to launch. (Defense Daily, Vol. 110, No. 2, May 2, 1980, p 16)

May 4: The Space Shuttle's powerful rocket engines will not only propel men and materials into space, but the engines' exhausts will leave imprints here on earth -- in and around Kennedy Space Center.

Space center scientists are studying the matter, and William Knott, biological sciences officer with NASA, explained why last week at the 17th Space Congress in Cocoa Beach.

"The exhaust from the solid rocket motor will provide pollutants in the atmosphere that will affect air and water quality at KSC" and may affect weather conditions in the area and/or may damage living things, Knott said.

In order to assess any damage caused by the pollutants, NASA has been studying the local environment to determine present conditions so that post-launch comparisons can be made. TODAY, Sunday, May 4, 1980)

May 5: President Carter has proclaimed the week beginning May 7, 1980 as Asian/Pacific American Heritage Week. America is composed of many racial and ethnic groups from many lands, whose contributions can be found in all areas of our society. This week was designated so we can increase our awareness and appreciate the accomplishments of Asian/Pacific Americans. (Memo from R. G. Smith to all KSC Civil Service Employees, Subj.: Asian/Pacific American Heritage Week, May 5, 1980)

May 7: Yugoslavia is planning its first venture into space - aboard America's Space Shuttle. The Tito I, named in honor of former Yugoslavian President Josip Broz Tito, will be sponsored by a Yugoslavian industry group led by INA, the country's major oil producer. And the experiment will be the first time that Yugoslavia has sent anything into space, a Yugoslavian consul affirmed in New York City.

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o A mysterious shadow in a picture snapped by the Voyager 1 spacecraft has led to the discovery of a 15th moon in orbit around the planet Jupiter, NASA reported Tuesday.

It is the second new satellite located by the pair of Voyagers that swept past the planet last year. The other was found by scientists in a photo taken by Voyager 2.

The new satellite, temporarily designated 1979 J2, was identified by Dr. Stephen P. Synnott of the Voyager Optical Navigation Team at NASA's Jet Propulsion Laboratory, Pasadena, Calif. (TODAY, Wednesday, May 7, 1980)

o Rep. George E. Brown Jr. (D-Calif.), a member of the House Space Subcommittee, has called for the establishment of an international agency to monitor satellites to bar the deployment of antisatellite systems (ASAT's). (Defense Daily, Vol. 109, No. 34, Wednesday, May 7, 1980, p 34)

o "Overall we are continuing to monitor the steady growth in foreign government investment in space activities. In some instances this will result in increased competition as well as in further cooperative opportunities. For example last December ESA successfully tested the Ariane vehicle (Atlas-Centaur class), Japan is developing an advanced version of the N vehicle (Delta class) and India last summer fired with partial success its initial SLV-3 (Scout class). I believe such competitive challenges to U.S. leadership are predictable and natural outcomes of the growing experience and interest with space around the world. They are a reminder that to stay ahead we need to maintain a vigorous program". NASA Administrator Dr. Robert A. Frosch, April 1980. (Defense Daily, Vol. 109, No. 34, Wednesday, May 7, 1980, p 37)

May 9: The Carter Administration says an active United States antisatellite development program is currently a necessity for strategic stability and until the Soviets agree to a ban on ASAT deployment, the U.S. "plans to maintain a vigorous ASAT development program."

In its FY 1981 arms impact statement to Congress, the Administration explains that the U.S. ASAT program will provide not only a hedge against failure to reach an agreement on these weapons, but also "indicates U.S. determination not to permit a Soviet antisatellite system monopoly."

The U.S. ASAT program is a major part of the Pentagon's Space Defense program, with a total requested funding of $249.5 million in FY 1981 and an estimated $283.4 million in FY 1982, directed toward the development of conventional and advanced ASAT interceptor systems, space survivability, space surveillance, space defense operations and command and control. (Defense Daily, Vol. 110, No. 7, May 9, 1980, p 48)

o The Senate Committee on Commerce, Science & Transportation yesterday approved a $5,569,854,000 FY '81 authorization for NASA, $52.2 million above the President's revised request and $52.3 million below the amount approved by the House Science and Technology Committee.

The Senate committee also approved the $300 million FY '80 supplemental for the Space Shuttle as did the House committee. The supplemental is also expected to be approved by the appropriations committees, primarily because of the need to have the Shuttle in time to launch DOD intelligence missions. (Defense Daily, Vol. 110, No. 7, Friday, May 9, 1980, p 52)

o The Soviet Union launched Cosmos 1178, a reconniassance/surveillance satellite from Plesetsk on Wednesday, May 7, putting the satellite into an initial orbit of 207/417 kilometers, 72.9 degrees, 90.4 minutes. (Defense Daily, Vol. 110, No. 7, Friday, May 9, 1980, p 54)

o The FY '80 budget cutting amendment proposed by Sen. Rudy Boschwitz (R-Minn.) and defeated 55 to 27 by the Senate Tuesday would have, among other things, cut $400 million in budget authority and $200 million in outlays from General Science, Space & Technology -- eliminating room for the $300 million supplemental for the Space Shuttle. (Defense Daily, Vol. 110, No. 7, Friday, May 9, 1980, p 54)

May 11: Dr. Wubbo Ockels, physicist from the Netherlands and one of the three Europeans training to be an astronaut, spoke at the 14th annual Patriot's Day, held at Freedom 7 Elementary School in Cocoa Beach May 2.

"Without the United States, it would never be possible to fly a man into space and I thank you and hope you have a very nice future," the scientist told a crowd of students, parents and Brevard County officials.

Ockels did his basic research at a nuclear physics laboratory in Europe. "We have built the space lab going up," Ockels said, "and the lab was given to NASA in exchange for the allowing a European to go along.

"It was a billion-dollar project with 10 member countries of the European Space Agency contributing to the lab. West Germany was the major contributor with over 50 percent of the cost given by them. Italy gave 18 percent, France 10 percent, and the smaller countries combined to pay 6 percent."

The other two European astronauts in training are Ulf Merbold, a solid-state physicist from West Germany, and Claude Nicollier, an astronomer from Switzerland. Ockels, who has been stationed in Cologne, West Germany, has a family in Bonn, West Germany, and has had to travel to various sites during his training.

Dr. Ockels spoke to the outdoor gathering, along with Dr. Judith Resnick, NASA astronaut, and Mrs. Gail Van Ormer, principal of Freedom 7 School. (Sentinel Star, Sunday, May 11, 1980)

May 12: NASA and the European Space Agency, who will equally share the experiment weight on the Spacelab I mission, have selected a total of 37 scientific experiments for the mission, which is scheduled in late 1982.

Each side has been allocated 3062 pounds of experiments. ESA has selected 24 experiments; NASA, 13, from a list of experiments identified several years ago for definition and development. However, three NASA-sponsored experiments and a major ESA facility that were under development had to be deferred and will be assigned to subsequent Spacelab flights. Deferrals were necessary primarily because the mass of the experiments exceeded available volume.

Experiments are in the areas of: 1) atmospheric physics and Earth observations; 2) space plasma physics; 3) material sciences and technology; 4) astronomy and solar physics; and, 5) life sciences. (Defense Daily, Vol. 110, No. 8, Monday, May 12, 1980 p 58)

May 13: The House Appropriations Committee, acting on the recommendations of its HUD-IA Subcommittee, has approved the $300 milliion FY '80 supplemental for the Space Shuttle that NASA has said it must have by June to keep the Shuttle on schedule, but at the same time has made a $15 million recision in the agency's FY'80 budget in order to terminate the NASA/ESA International Solar Polar Mission (ISPM).

Subcommittee chairman Edward P. Boland (D-Mass.) has suggested the ISPM termination during hearings on the NASA budget last month.

The ISPM earlier took the brunt of President Carter's $219 million FY '81 budget revision for NASA -- a direct reduction of $43 million and a two-year delay.

May 14: Industrial Steel Inc., of Mims, Fla., has won a $740,000 contract with NASA's John F. Kennedy Space Center to supply a set of two tail service masts for a Space Shuttle mobile launcher platform. (NASA News Release No. 81-80, May 14, 1980)

May 15: NASA experts are considering removing and strengthening every heat protection tile on the spaceship Columbia that has not already been removed and treated, NASA officials said Wednesday.

As many as 10,000 tiles could be involved.

Such a decision would likely delay the first scheduled launch of the Space Shuttle by months. The first launch, expected no sooner than November 1980, is already more than two years behind schedule. (TODAY, Thursday, May 15, 1980)

o ". . . Since government supposedly exists because there is a problem that needs solving, solving the problem can be the fastest way to end the life of a given agency. The National Aeronautics and Space Administration was considered the star among bureaucracies in the 1960's. It received all the money it needed and was lavished in publicity and compliments. Once it had succeeded in landing a man on the Moon it was destined for oblivion. Today NASA has to fight for its life and suffers from both obscurity and budget cuts. Such are the rewards for success in Washington" -- Rep. John Ashbrook (R-Ohio), May 7, 1980. (Defense Daily, Vol. 110, No. 11, Thursday, May 15, 1980, p 80)

May 16: NASA's John F. Kennedy Space Center has awarded a contract to the R. C. Cowan Construction Co., Cocoa, for re-paving the Saturn Causeway.

Under the $232,000 fixed-price contract, Cowan Construction will prepare, pave and repaint approximately 5.4 miles of two-and-four-lane roadway. The causeway runs from just west of the Vehicle Assembly Building to Launch Complex 39's Pad A and Pad B. The contract is one set-aside for a small business firm in a labor surplus area. The work is to be completed within 60 calendar days. (NASA News Release No. 86-80, May 16, 1980)

o NASA has decided that the retesting of the three Space Shuttle Main Engines for the Shuttle Orbiter Columbia will consist of a single 520-second static test of each engine. The first engine, #2007, will be test fired late this month, followed by #2006 in mid-June and #2005 in late June. Testing will be conducted on two test stands at the National Space Technology Laboratories in Mississippi by Rocketdyne, prime contractor for the engines. The retesting was ordered because of the number of modifications that have been made to the engine as a result of continuing testing. Maiden launch of the Shuttle is expected in February. (Defense Daily, Vol. 110, No. 12, Friday, May 16, 1980, p 86)

May 18: The National Aeronautics and Space Administration says there is only a "one-in-a-million" chance that any of the space shuttle Columbia's tiles will fall off in flight, but the agency is proceeding with a daring scheme for repairing the tiles in earth orbit, just in case.

Using a modernized version of the one-man "backpack" gas-jet propulsion unit first used on the Skylab mission, NASA hopes it will be possible for the shuttle crew to do as much as 10 hours of in-flight repair work.

By locking the unit to the side of the shuttle orbiter and using a special tile repair kit, authorities say that an astronaut may be able to patch a maximum of 60 silicon-fiber tiles with material about the consistency of caulking compound.

Although the space agency intended to use one of the "manned maneuvering units," or MMUs, on later shuttle missions, it didn't begin making plans to adapt it for tile repairs until problems with the shuttle's thermal protection system became apparent last year.

The loss of a single tile would not necessarily doom the orbiter, but there are a number of sensitive locations on the craft where engineers say a lost tile could spell disaster. (The Miami Herald, Sunday, May 18, 1980)

May 19: Arnold Brothers Construction, Inc., of Cocoa, Florida, has won a contract with NASA's John F. Kennedy Space Center for the construction of air conditioning facilities.

Under the $55,951 fixed-price contract, Arnold Brothers will rebuild two cooling towers which support the air conditioning systems of the Operations & Checkout Building and the Central Instrumentation Facility. (NASA News Release No. 87-80, May 19, 1980)

o John J. Neilon, graduate of Manchester High School West and St. Anselm's College in Manchester, New Hampshire, was awarded the Outstanding Achievement Award recently in the awards ceremony of the 17th Annual Space Congress in Cocoa Beach, Fla.

The Canaveral Council of Technical Societies, host of the yearly symposium, honors an individual each year for outstanding contributions to the aerospace industry. The 1980 award jointly honors Neilon, Manager of the Cargo Projects Office at the Kennedy Space Center, and Major Robert Peters, U. S. Air Force.

In a citation accompanying the award, Neilon was praised for "outstanding achievement in Space Shuttle Cargo Program management, through the establishment and direction of the John F. Kennedy Space Center's Cargo Project Office."

Neilon's responsibilities at KSC include the planning and management of payloads which will be carried into earth orbit by the Space Shuttle. These payloads will range from the European-built Spacelab, a self-contained laboratory, to communications and scientific satellites, planetary probes, and upper stages to boost some payloads into higher earth orbits or into planetary trajectories. (NASA News Release No. 88-80, May 19, 1980)

o The Soviet Union added two more Cosmos satellites to its space operations last week, one a geophysical spacecraft and the other a possible malfunctioning navigation mission. On May 14, Cosmos 1179 was sent into what is usually the navigation regime, but with an unusual elliptic orbit suggesting a malfunction. The Plesetsk mission was put into an orbit of 310/1570 kilometers, 83.0 degrees, 103.5 minutes. The following day, May 15, Plesetsk put a geophysical payload into a 240/296-kilometer, 62.8-degree, 89.8-minute orbit. (Defense Daily, Vol. 110, No. 13, Monday, May 19, 1980, p 97)

May 22: The Columbia has a new problem. And this time it's not the tiles. It's because of the tiles.

Recent tests indicate that the aluminum substructure is not strong enough, and technicians out at Kennedy Space Center are crawling around inside the spaceship strengthening the Columbia's thin aluminum skin.

It's not that the Columbia might break in half during flight. Rather, engineers fear that its thin aluminum skin might start ripping as the Columbia plummets through the atmosphere at more than 16,000 miles per hour.

And if the orbiter's skin bends and flexes too much, the vehicle's fragile heat-resistant tiles could crack up or come flying off. The tiles, which are glued to the vehicle's aluminum surface, are designed to protect the spaceship from the heat of re-entry. (TODAY, Thursday, May 22, 1980)

May 23: Citing continued problems with the space shuttle's heat tiles, NASA has delayed the date for the spaceship's first test flight from Nov. 30 to March 1981.

The space agency also announced Thursday that the shuttle's first "operational" mission, planned to open a new age of space commerce, has been rescheduled from March 1982 to September 1982. (Sentinel Star, Friday, May 23, 1980)

o The Space Shuttle's three main engines were shipped to the National Space Technology Laboratories (NSTL) earlier this month for retesting. The decision to refire the engines was made due to modifications to the engines since their initial flight validation.

The initial firings took place during the second quarter of 1979, and consisted of three firing runs of 1.5, 100 and 520 seconds duration for each engine. Some additional firings were required either as retests or to obtain more data.

To date, the three engines have accumulated firing time totals of 701 seconds on engine #2005 (4 tests), 621 seconds on engine #2006 (3 tests), and 1,072 seconds on #2007 (7 tests). All firings were done at NSTL.

Since those firings, the engines have been installed in the orbiter, but were later removed for additional modifications to various components. The engine steerhorn assemblies were nickel plated as one such modification in response to suspected improper welding wire use. Later, engine turbopumps were removed for modifications by the manufacturer, and other items were either improved or replaced.

The retest procedures call for a single firing run for each engine, for a duration of 520 seconds at a maximum power level of 100 percent of rated thrust. The firing schedule is planned to allow all three engines to be returned to KSC by the end of July. The first firing in the requalification tests is expected to occur near the end of May, with the following two runs at approximately two week intervals. (Spaceport News, Vol. 19, No. 20, May 23, 1980, p 1)

- Exemplifying NASA's statement of support for National Guard, Reserve and other United States forces, two KSC employees are serving on duty during the Cuban sea lift. Natalie Leslie and Roland Raab, both of Public Affairs, have gone to the opposite ends of the state for the same purpose; they will be assisting in the sorting and processing of Cuban refugees.

  Leslie, a secretary in Education Awareness Branch and a reserve in the U.S. Coast Guard, was sent to the Coast Guard Station in Key West. She is working as a cook, fixing meals for hundreds of seamen and refugees alike, as they arrive at the base. She has also worked serving citations to local shrimpers who violate maritime statutes.

  Leslie reports that she has never before seen such cooperation and teamwork, nor has she seen people work so hard for so long. She also relates the emotional experience of seeing the reactions of the refugees when they realize that their journey is finally over and that they have reached the United States.

  Public Affairs officer Raab is serving at Eglin AFB at a downtown press center to assist with the massive press interest in the Cuban situation. The Fort Walton Beach center has been filled with press from all over the country since the beginning of the program, and media interest has not slackened. Raab was called to active duty by the Air Force Reserve for two weeks. (Spaceport News, Vol. 19, No. 20, May 23, 1980, p 1)

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THE WHITE HOUSE
WASHINGTON

APRIL 11, 1980

To Bob Frosch

I want to congratulate the National Aeronautics and Space Administration on receiving the first Udall/Derwinski Award for excellence in civil service reform implementation.

Civil service reform is the most effective method we have for bringing better management and increased productivity to the Federal Government, and my sincere thanks go to the men and women of your agency for the exemplary role they have played in making that reform a reality.

The leadership and professionalism demonstrated by NASA in establishing its Senior Executive Service and in designating and administering performance appraisal systems are helping to ensure the success of such programs throughout Government.

My congratulations on a job well done.

Sincerely,

Original signed by
Jimmy Carter

The Honorable Robert A. Frosch
Administrator
National Aeronautics and Space Administration
Washington, D.C. 20546

(Spaceport News, Vol. 19, No. 20, May 23, 1980, p 3)

o Because of continuing problems with the Space Shuttle's thermal protection system, NASA announced yesterday that the most probable time for the maiden launch of the Shuttle is now March 1981 instead of February 1981, and at the same time announced that the operational flights of the Shuttle have been delayed from March 1982 to September 1982.

The agency said it hopes to complete the four Orbital Flight Tests of the Shuttle by April 1982. The first operational flight in September 1982 is slated to launch the first Tracking & Data Relay Satellite (TDRS-A). NASA said it was pushing back the operational flights in order to provide more time for engineering during the Orbital Flight Tests and to provide a smooth and structured transition to the operational flights.

As a result of the delay in operational Shuttle flights, NASA said it would employ Delta 3910 and 3920 vehicles for certain of its missions, as would Telesat, Indonesia and Hughes, other scheduled early users of the Shuttle. The agency is considering modification of Pad 17-B at the Cape to accommodate the Delta 3900 series.

The agency will hold a conference for Shuttle users May 29-30 at Kennedy Space Center to discuss the outlook and schedule for Shuttle availability.

NASA has said that the earliest it could launch the Shuttle is Nov. 30, 1980. Presumably that is now early January 1981. (Defense Daily, Vol. 110, No. 17, Friday, May 23, 1980, p 123)

May 27: The announcement last week that the first launch of a Space Shuttle carrying a major payload has slipped six months is prompting a meeting Thursday and Friday at Kennedy Space Center of Shuttle users.

NASA headquarters has scheduled a Space Transportation Users conference to discuss the latest delay.

The agenda includes discussions of the Space Shuttle schedule, alternate launch vehicles, insurance arrangements, other components of the Space Transportation System and a rundown of payloads. (TODAY, Tuesday, May 27, 1980)

- NASA's John F. Kennedy Space Center has awarded Belko Steel Corp., Orlando, Fla., a $199,080 contract for holddown posts which support and restrain the Space Shuttle vehicle on its transportable launch platform. (NASA News Release No. 94-80, May 27, 1980)

- The first stage of the three-stage ESA/CNES Ariane launch vehicle failed in Ariane's second test Friday at Kourou, French Guiana, and the vehicle plunged into the Atlantic Ocean.

  The predominantly French-built launch vehicle performed perfectly in its maiden flight in December from Kourou, the first of four tests planned to demonstrate the reliability of the vehicle before declaring it operational. A competitor to the U.S. Space Shuttle for a large number of missions, the basic Ariane is designed to place an 870-kg payload into geosynchronous orbit.

  Seven seconds into Friday's launch, one of the four SEP-built Viking-5 engines which powers the first stage of Ariane experienced fluctuations in power and at 60 seconds its power dropped to zero. Forty seconds later the malfunction of the first engine impacted the other three engines, which had to that time been operating properly, and the vehicle plummeted into the Atlantic.

  In addition to a technology monitoring capsule, the Ariane LO-2 carried two satellites -- the 1105-kg Firewheel magnetospheric monitoring satellite built by the Max Plank Institute of West Germany, and the 92-kg Oscar-9 satellite provided by Amsat-Germany.

  ESA and CNES have said that two successes will be needed to declare Ariane operational. (Defense Daily, Vol. 110, No. 18, Tuesday, May 27, 1980, p 134)

May 28: Rather than reject some Space Shuttle test equipment that didn't meet their standards, officials at Kennedy Space Center reduced the standards so the equipment would pass, an internal space agency audit says.

KSC officials defend their decision, which they said was made in part because they were "in a rush."

The matter is under investigation by NASA, KSC officials said. It is part of a broad investigation by the branch of the NASA inspector general's office that handles allegations of criminal fraud or mismanagement.

The auditors' report, completed in February, said "items were being procured, accepted and paid for even though they did not meet required specification. As a result, NASA was paying for a lower quality product without a corresponding decrease in price."

The inspector general's investigation apparently was triggered by complaints from a KSC employee to Sen. William Proxmire, D-Wis., chairman of a Senate subcommittee that funds NASA.

A Proxmire aide said that investigators are examining charges that specifications for both valves and transducers for the Space Shuttle were reduced in order to move ahead with the program.

They also are checking allegations of faulty batteries, a questionable computer purchase and reprisals against the employee who made the charges, the aide said. (TODAY, Wednesday, May 28, 2980)

o NASA said Friday that it has now installed 25,059 of the 30,922 thermal protection system insulation tiles on the Space Shuttle Orbiter Columbia.

Installation rate has been at between 600 and 700 tiles a week recently, which means that installation could be completed by the end of July, the schedule that NASA has been forecasting.

A total of 16,281 tiles have been proof-tested to date, of which 12,906 have been accepted and 3,375, or 20 percent, rejected.

NASA said Thursday that the estimated date for the first flight of the Shuttle has been pushed back about a month and that the first operational flight has been delayed by six months. A new Shuttle flight manifest, reflecting the delay in operational flights, is being drawn up by the agency and may be out as early as June 15. A number of customers will be "bumped" by the delay, and several, including NASA, will go to the Delta 3910 or 3920 vehicle for some missions. (Defense Daily, Vol. 110, No. 19, Wednesday, May 28, 1980, p 140)

May 30: Aydin Monitor Systems, of Fort Washington, Pa., has been awarded a contract by NASA's John F. Kennedy Space Center to supply computer equipment.

Under the $39,000 contract, Aydin Monitor Systems will supply five bit synchronizers, accessory systems which sort and process raw data so that it can be recorded and stored. The synchronizers will support KSC's Launch Processing System, a complex computer system used to monitor and control Space Shuttle checkout and launch operations. (NASA News Release No. 97-80, May 30, 1980)

June 2: NASA has signed an agreement with the European Space Agency (ESA) for the agency to provide a second Instrument Pointing System for Spacelab. Value of the contract, to be carried out by Dornier Systems of West Germany, is $20 million. NASA said that since it ordered a second Spacelab from ESA earlier this year, it needs a second IPS to equip both vehicles. ESA provided the first IPS at no cost under its Spacelab agreement with NASA, but has been unhappy that NASA had not contracted for the second system. (Defense Daily, Vol. 110, No. 22, Monday, June 2, 1980, p 164)

- NASA has announced that as a result of the delay in operational Shuttle missions the first flight of the Spacelab has been pushed back to May 1983. The launch had been planned for April 1982. (Defense Daily, Vol. 110, No. 22, Monday, June 2, 1980, p 164)

- NASA says NOAA-7 weather satellite, launched into an incorrect orbit Thursday, will not be able to perform its mission. A substitute spacecraft will be launched within 150 days to replace the RCA satellite. Abnormally low thrust and prolonged burning of one of the three booster engines of the General Dynamics Atlas-F rocket put the spacecraft into an incorrect elliptical orbit of 150/900 miles, instead of a circular orbit of about 540 miles. (Defense Daily, Vol. 110, No. 22, Monday, June 2, 1980, p 164)

- The Soviet Union launched Cosmos 1181, a navigation satellite, on May 20, apparently the second of a pair, with the first, Cosmos 1179, on May 14, going into an incorrect orbit. Cosmos 1181 was put into a 992/1020-kilometer, 83.0-degree, 105-minute orbit. On May 23, the Soviets put Cosmos 1182, a reconnaissance/surveillance satellite, into an orbit of 221/278 kilometers, 82.3 degrees, 89.2 minutes. Cosmos 1183, a reconnaissance/surveillance spacecraft, was launched on May 28 into an orbit of 208/414 kilometers, 72.9 degrees, 90.4 minutes. (Defense Daily, Vol. 110, No. 22, Monday, June 2, 1980, p 164)

o The Government of Argentina has announced that it has the technical capability to build and launch a satellite by the end of the 1980's. It reported that the Argentine Military Aircraft Factory has a $10 million project to develop a satellite via the transfer of foreign technology. (Defense Daily, Vol. 110, No. 22, Monday, June 2, 1980, p 164)

o Failure of the second Ariane space launcher need not delay future launches and will not jeopardize the Ariane follow-on program, according to one European Space Agency official, who characterized the failure's cause as an anomaly rather than a design flaw.

The third and fourth test flights are scheduled for this November and next February respectively. Preparations for them are proceeding on schedule for the moment and need not be delayed, one ESA official said.

The failure occurred May 23 shortly after liftoff from the Kourou launch site in French Guyana. Officials from ESA and CNES, the French national space agency, will conduct an intensive investigation of the cause of the failure, which already has been identified as some sort of problem with one of the four first-stage Viking 5 engines. This inquiry will continue in parallel with preparations for the next launch and would interrupt the firing schedule if it determined hardware modifications were necessary.

Engineers at the launch site already have made a preliminary review of telemetry from the flight. The next step will be to collect "every possible piece of data" concerning the flight. Particular attention is being focused on the history of Engine D, which appears to have caused the failure of the other three engines. Eventually, a review board will decide the cause and overall impact of the malfunction.

Delegates for the 10 European nations contributing to the Ariane program who witnessed the second launch have said the failure should not be taken as a signal to slow down the follow-on development program, according to one ESA official. (Aviation Week & Space Technology, Vol. 112, No. 22, p 17)

June 3: Dr. Carl Sagan of Cornell University and Dr. Bruce Murray, director of the Jet Propulsion Laboratory, have formed a non-profit, national organization -- "The Planetary Society" -- to win public support of increased U.S. participation in planetary exploration and the search for extraterrestrial life.

Sagan will be president, and Murray, vice president, of the society, which is incorporated in Altadena, Calif. Among the board of advisors for the society will be chairman Adlai E. Stevenson (D-Ill.) of the Senate Space Subcommittee, and Sen. Jack Schmitt (R-N.M.), ranking minority member of the subcommittee. Dr. Louis Friedman will be the society's executive director.

In addition to Stevenson and Schmitt, other members of the society's board of advisors are:

*Diane Ackerman, author.
*Dr. James van Allen.
*Harry S. Ashmore, former editor-in-chief, Encyclopedia Brittanica.
*Isaac Asimov, author.
*Richard Berendzen, president of American University.
*Ray Bradbury, author.
*Johnny Carson, television talk show host.
*Norman Cousins, editor.
*Frank Drake, director of the National Astronomy and Ionosphere Center.
*John Gardner, founder of Common Cause.
*Shirley W. Hufstedler, Secretary of Education.
*James Michener, author.
*Philip Morrison, professor, MIT.
*Bernard M. Oliver, vice president-R&D, Hewlett-Packard.

(Defense Daily, Vol. 110, No. 23, Tuesday, June 3, 1980, p 168)

June 4: Rockwell International Corp.'s heat-resistant tiles have been a constant headache to NASA's Shuttle program.

So it may come as a suprise to some people that NASA has picked Rockwell to look into alternate ways to protect future orbiters from the heat of re-entry.

NASA announced that Rockwell of Downey, Calif., will begin the nine-month $900,000 study later this month.

"There were a lot of guffaws," said one NASA official when asked what the reaction around the office had been. "But they're just about the only people in the world doing this sort of thing," he added.

NASA invited 46 companies to submit proposals for the study.

Response was less than enthusiastic. Only Rockwell and Boeing Co. submitted proposals. A nine-member committee at NASA's Langley Research Center in Hampton, Va. judged the proposals based on four criteria: technical approach, understanding of the problem, personnel and the company's experience. (TODAY, Wednesday, June 4, 1980)

o One of the main engines that will power the Space Shuttle Orbiter Columbia on its maiden flight was test fired Monday afternoon. According to the Marshall Center Shuttle Projects Office Engine 2005, on stand A-2 at National Space Technology Laboratories, successfully completed its second 520-second acceptance test, confirming its readiness for flight.

Engine 2006 was in stand A-1 scheduled for a similar test firing at Star press time yesterday. Engine 2007 will be placed in stand A-2 after 2005 has been removed. Recertification of 2007 is due in about two weeks.

During the firing Monday, the engine was throttled from 100 percent of rated thrust down to 65 percent and then back to 100 percent. (Marshall Star, Vol. 20, No. 38, June 4, 1980, p 2)

o The Space Shuttle's main propulsion system was successfully test fired for nine minutes and 38 seconds last Friday, May 30. This exceeds the duration required to place a Shuttle in orbit.

The firing brings the total test time on the main Shuttle propulsion system, which consists of three engines, an External Tank and associated parts of the Orbiter, to 41.3 minutes; nearly three quarters of an hour of firing. This is in addition to the more than 19 hours of single engine tests that have been conducted in a separate program.

The main propulsion system test was conducted by the Rockwell International Space Systems Group, under the direction of the Marshall Center.

Robert A. Bush, Marshall's resident manager of test operations at the National Space Technology Laboratories where the tests are conducted, said Friday that the test met all its objectives.

The Shuttle's engines were gimballed (steered) while firing, and they were throttled in stages from 100 percent of rated thrust down to 65 percent. The Shuttle will have the first man-rated engines capable of throttle control during flight. (Marshall Star, Vol. 20, No. 38, June 4, 1980, p 2)

- Olsen Electric Co., Inc., of Daytona Beach, Fla., has won a contract with NASA's John F. Kennedy Space Center to supply electrical equipment.

  Under the $262,806 contract, Olsen Electric will manufacture three sets of Payload Data System Interface Equipment racks. Two of the systems will serve as ground links for the Mobile Launcher Platforms, the huge, movable stands on which the Space Shuttle will be carried to the launch pad. The other system will be used in the Vertical Processing Facility, a building where payloads are checked out before launch. These electrical systems will allow technicians to monitor and control payloads while in the Vertical Processing Facility and while on the launch pad in the cargo bay of the Space Shuttle orbiter. (NASA News Release No. 98-80, June 4, 1980)

- The Soyuz 35 spacecraft was returned to Earth yesterday from the Salyut 6 space station carrying the Soyuz 36 cosmonauts. The spacecraft landed 140 kilometers (87 miles) southeast of Dzhezkazgan, 228 miles northeast of the Baikonur Cosmodrome at Tyuratam-Leinsk. Soviet Pilot-cosmonaut Valeriy Kubasov and Hungarian research-cosmonaut Bertalan Farkas were launched into space aboard Soyuz 36 on May 26 and docked with the Salyut 6 station early on the morning of May 28. Their spacecraft was left docked with the station for the use of cosmonauts Valeriy Ryumin and Leonid Popov, who have been in space since April 9 and are apparently attempting to set a new endurance record. (Defense Daily, Vol. 110, No. 24, Wednesday, June 4, 1980, p 173)

- The Senate Subcommittee on HUD-IA Appropriations yesterday approved a $285 million FY '80 supplemental for NASA to pay for increasing costs of the Space Shuttle, deleting $15 million of the $300 million request.

  At the same time, however, the subcommittee, which is chaired by Sen. William Proxmire, voted to provide full funding in FY '80 for the International Solar Polar Mission (ISPM)--thus offsetting the initiative by the House HUD-IA Appropriations Subcommittee to delete those funds in order to terminate the international mission. (Defense Daily, Vol. 110, No. 24, Wednesday, June 4, 1980, p 173)

- A successful 575-second test of a three-engine Space Shuttle Main Engine cluster was achieved by NASA May 30 at the National Space Technology Laboratories. All test objectives were met. These included throttling of the engine at seven distinct stages between 65 and 100 percent of rated power, gimballing and pogo pulsing. Next Main Propulsion Test Article test firing is slated for July 12. (Defense Daily, Vol. 110, No. 24, Wednesday, June 4, 1980, p 175)

- The first of the three Space Shuttle Main Engines for the Orbiter Columbia which is being retested by NASA was successfully test fired for the mission-duplicating 520 seconds at the National Space Technology Laboratories, Miss., Tuesday evening. Test of the second engine was scheduled late yesterday. The engines were removed from the Columbia at Kennedy Space Center and shipped to NSTL for retesting in order to make certain that the engines were not affected by the numerous changes made in them since they were originally tested. (Defense Daily, Vol. 110, No. 24, Wednesday, June 4, 1980, p 178)

June 5: The Senate by voice vote Tuesday approved the $5,569,854,000 FY '81 authorization for NASA recommended by its Commerce Committee representing an increase of $52.2 million over the amount requested by the President in his revised budget and a decrease of $52.3 million from the amount approved by the House Science & Technology Committee, now awaiting House Action.

The Senate Friday by voice vote approved the $300 million FY '80 NASA supplemental authorization. On Tuesday, however, the Senate HUD-IA Appropriations Subcommittee voted to cut the supplemental appropriation to $285 million. The subcommittee may not get to the FY '81 NASA appropriation until early next month, following expected action by its House counterpart. (Defense Daily, Vol. 110, No. 25, Thursday, June 5, 1980, p 181)

June 6: Four new appointments of top managers for the Kennedy Space Center have been announced by Center Director Richard G. Smith.

Raymond L. Clark, Director of Design Engineering, was named Associate Director for STS Development; Peter A. Minderman, Director of Technical Support, was appointed Director of Design Engineering; Thomas E. Utsman was promoted to Director of Technical Support; and Thomas S. Walton was made Director of Cargo Operations. (NASA News Release 100-80, June 6, 1980)

o Thomas S. Walton, a native of Clewiston, Fla., has been promoted to Director of Cargo Operations at NASA's John F. Kennedy Space Center.

In his new position, Walton will be responsible for the preparation and integration of the various payloads which are launched into earth orbit and deep space from KSC. (NASA News Release No. 107-80, June 6, 1980)

o For the past week astronauts have been flying training runs at KSC to simulate orbiter approaches at the Shuttle Landing Facility. Tests began on May 29 with three T-38 aircraft--one to simulate the orbiter gliding in for a landing, and the other two to act as chase planes.

Pilot-astronauts Jon McBride, Dave Walker, and Hoot Gibson flew the T-38's during their return-to-landing-site approaches. Also in the cockpits where astronauts Bo Bobko and Dick Scobee, and NASA pilot Dick Gray from JSC.

The purpose of the trial runs is to provide practice for the pilots of the T-38 chase planes; to acquaint the prime and backup orbiter crews with the KSC runway configuration; to develop coordination techniques between the radar tracking personnel and the aircraft pilots; and to determine ways to minimize hazards posed by KSC's bird population. (Spaceport News, Vol. 19, No. 12, June 6, 1980, p 2)

o Loyd C. Parker, formerly head of the Safety and Quality Assurance Engineering Branch at the Wallops Flight Center in Virginia, has accepted the KSC post of director, Safety, Reliability and Quality Assurance, and Protective Services. He replaces John Atkins, who retired in October 1979. The position had been filled on an interim basis by W. H. Rock, Deputy Manager of the Cargo Projects office.

A graduate of North Carolina State College, where he took a degree in electrical engineering, Parker joined NASA at Wallops in 1959. In 1961 he became head of the newly-formed Range Safety organization there. He developed the Wallops ground and flight safety policies and procedures for launches of sounding rockets and of the Scout, NASA's smallest standard orbital launch vehicle.

As the title implies, the Director of Safety, Reliability & Quality Assurance, and Protective Services has a wide range of responsibilities.

In the areas of fire and security protection, the Safety Office oversees the work of the Wackenhut Services, which by contract provides security, fire protection, and astronaut rescue services at KSC.

Parker's office also handles worker's compensation claims by Center employees, and he serves as a member of the KSC Senior Management Council.

In the area of safety Parker is responsible for developing and implementing overall safety policy and procedures at KSC, and activities relating to KSC programs at Cape Canaveral and Vandenberg Air Force Base. He is in charge of KSC reliability and quality assurance programs, including integrating the work of both NASA and contractors. His office also performs hazard assessment and risk reduction efforts for all programs and projects assigned to KSC.

Parker will reside in Cocoa Beach with his wife, Jeralyn, and one daughter. They have two sons, one in college and one who will remain at work in Virginia. (Spaceport News, Vol. 19, No. 12, June 6, 1980, p 3)

- The University of Central Florida's Division of Sponsored Research has been awarded a contract to monitor weather conditions at NASA's John F. Kennedy Space Center.

  Under the $40,683 contract, UCF will conduct a survey measuring soil content and the amount of rain and dry contaminants which fall on the Kennedy Space Center and at UCF. The results will be used to establish a program for monitoring the weather which will assist in planning Space Shuttle launches and landings at KSC. (NASA News Release No. 103-80, June 6, 1980)

- NASA's John F. Kennedy Space Center has awarded a $155,893 contract to United Electric Company, of Cocoa, Florida, to supply and install a new lighting system.

  Under the fixed-price contract, United Electric will replace the lighting system in the Vehicle Assembly Building, the 52-story building where the Space Shuttle vehicle is being assembled for launch. The existing mercury vapor lamps will be replaced with brighter, energy-efficient sodium vapor lamps. (NASA News Release No. 104-80, June 6, 1980)

- Raymond L. Clark, a 1945 graduate of the U. S. Military Academy, has been promoted to Associate Director for Space Transportation System Development at NASA's John F. Kennedy Space Center.

  In this newly-created position, Clark will assist KSC Center Director Richard G. Smith during the critical period leading up to the initial launch of the Space Shuttle, scheduled for March, 1981. (NASA News Release No. 105-80, June 6, 1980)

- Thomas E. Utsman, formerly of Dearborn, Mich., has been promoted to Director of Technical Support at NASA's John F. Kennedy Space Center.

  In his new position, Utsman will be responsible for support services in connection with the checkout and launch operations which are carried out at KSC. Much of this technical support will be in preparation for Space Shuttle launches, scheduled to begin in 1981. (NASA News Release No. 106-80, June 6, 1980)

- Peter A. Minderman, a native of Port Clinton, Ohio, has been promoted to Director of Design Engineering at NASA's John F. Kennedy Space Center.

  In his new position, Minderman will be responsible for the design and acquisition of all equipment and facilities required for launch operations at KSC. (NASA News Release No. 108-80, June 6, 1980)

June 9: The Soviet Union has studied the possible development of a reusable space vehicle but has rejected it for now because its present launch vehicle/spacecraft system is adequate, Soviet Lt. Gen. Valdimir Shatalov, leader of the Soviet cosmonaut training program, has disclosed.

"Soviet specialists have also investigated the possibility of producing spacecraft that can be used more than once. In the given stage, however, they considered the employment of these spacecraft is not justified for Soviet research because the present tasks can be solved with the well-tested methods in an economic way," Shatalov is reported to have said.

At the same time, he is quoted as saying that the Soviets are looking at ways to increase the two-man capacity of its Soyuz spacecraft and at ways to return more scientific equipment and data from the spacecraft when it returns to Earth. (Defense Daily, Vol. 110, No. 27, Monday, June 9, 1980, p 197)

- Space shuttle project will wait until mid-July to determine whether up to an additional 9,000 thermal protection tiles on the orbiter Columbia should undergo a densification process to increase their bonding capability to the spacecraft. If all 9,000 extra tiles were densified, it could force first launch to slip from March, 1981, into June, 1981.

NASA and Rockwell management, who met May 30 to discuss the issue decided they would need data from additional vibroacoustic and dynamic loads analysis before making a decision. Those data will not be available until about mid-July. NASA and Rockwell believe it is more likely that only part of the 9,000 tiles initially planned to remain undensified will be found to require densification, preserving a first launch by next March.

Shuttle managers are confident they have at least a 25% margin on all aspects of shuttle tile loads, even if the additional tiles are not densified. Densifying the additional 9,000 tiles would increase the margin to 75% for all loads across the orbiter. NASA and Rockwell must trade off their confidence in analysis on shuttle loads against the 25% margin to determine how many, if any, additional tiles need to be densified.

NASA management knows that it will be hit with intense criticism from Congress, and possibly payload sponsors and other sectors, if it needs to slip the shuttle schedule again to continue tile operations. NASA management said last week that it must resist this pressure and concentrate entirely on flight safety issues in making its decision on the matter.

As the tile assessment continued, the space shuttle main engine program succeeded in three important test firings at the National Space Technology Laboratories. Main propulsion test article was fired for 575 sec. May 30 and the three-engine cluster performed a series of engineering tests without difficulty during the burn.

On June 2 and 5, flight Engines 2005 and 2006 successfully completed 520-sec. reacceptance test firings. Engine 2007 will undergo a similar test in late June or early July. (Aviation Week & Space Technology, Vol. 112, No. 23, p 20)

o Shuttle supplemental authorization of $300 million has passed the Senate and has been requested to be brought to the House floor at "the earliest possible date."

Rep. Don Fuqua (D.-Fla.), chairman of the House Science and Technology committee, did not request a firm date from the House leadership for consideration of the supplemental.

The supplemental to the Fiscal 1980 budget increases the shuttle program portion from $1.586 billion to $1.886 billion, and the total National Aeronautics and Space Administration authorization in Fiscal 1980 from $4.961 billion to $5.261 billion.

The shuttle supplemental is expected to pass the House. Were it to fail in Congress, shuttle development could slip three to four months and follow-on orbiters could be seven to nine months late. The total shuttle program costs would grow $600-850 million, according to a report that accompanies the supplemental bill. (Aviation Week & Space Technology, Vol. 112, No. 23, p 23)

June 10: NASA's John F. Kennedy Space Center has awarded Computer Sciences Corporation's Applied Technology Division, Falls Church, Va., a $36,782,578 one-year extension on its communications and instrumentation support services contract.

The cost-plus-award-fee contract calls for CSC to provide communications and instrumentation services in support of the Space Shuttle program including development, flight test and operational phases, as well as for expendable launch vehicle programs utilizing Delta and Atlas Centaur rockets, and various earth resources investigative programs. Data acquisition and data processing for KSC's manned and unmanned launches and administrative programs, instrumentation of the Launch Control Center firing rooms and the operation of timing systems are among the support services provided under the contract. (NASA News Release No. 112-80, June 10, 1980)

o NASA has awarded a contract to establish and operate a two-ship recovery force to retrieve expended Space Shuttle solid rocket boosters from the Atlantic Ocean. The contract, managed by the John F. Kennedy Space Center, went to United Space Boosters, Inc., Huntsville, Ala.

USBI is a subsidiary of United Technologies Corporation's Chemical Systems Division, Sunnyvale, Calif.

The $7,230,976 agreement formalizes a letter contract signed July 13, 1979, and covers the period through February 28, 1982. Options for the two specially constructed recovery vessels to be operated by USBI under the contract extend for a 14-year period through February 28, 1995. (NASA News Release No. 101-80, June 10, 1980)

June 11: Two of the main engines that will power the Space Shuttle Orbiter Columbia on its maiden flight have now passed their second acceptance tests. Engine number 2005 completed the 520-second acceptance test successfully June 2, and number 2006 repeated the performance June 5, confirming their flight readiness.

According to Shuttle main engine managers at the Marshall Center, engine number 2007 will be tested in about another week, completing the program for Columbia's three main engines. The test program is on schedule for installing the engines on Columbia by the end of July.

The tests are being conducted for Marshall by the Rocketdyne Division of Rockwell International at NASA's National Space Technology Laboratories. (Marshall Star, Vol. 20, No. 39, June 11, 1980, p 1)

o It was a bright, hot day, July 1, 1960. Many hundreds of people gathered for a ceremony marking the creation that day of the new George C. Marshall Space Flight Center, National Aeronautics and Space Administration.

That happy event will be recalled in an anniversary observance exactly 20 years later, 9:30 a.m. Tuesday, July 1, 1980 -- in the cool of Morris Auditorium.

The brief birthday celebration in our main building will be attended by a roomful of people and viewed on TV throughout the center. It will include the cutting of a ceremonial cake.

Immediately afterward, all employees will be invited to a reception in the lobby of 4200 where the large cake and other cakes will be served. Serving of refreshments will continue through the morning.

Watch the Star for details on this and other aspects of the Center's birthday observance.

The first main feature of the observance will, of course, be the annual Center picnic, set for June 21. (Marshall Star, Vol. 20, No. 39, June 11, 1980)

o The Soviet Union, whose cosmonauts have spent up to 175 days in space at a time on the Salyut-6 Space Station, approaching the time needed for a manned flight to Mars, says that the Salyut program is paving the way for manned planetary exploration.

". . . The operations and experiments made at Salyut-6 convinces me that the creation of the Soyuz-Salyut-Progress orbiting complex has really become a qualitatively new stage in Soviet and world space research which opened up new avenues of exploring and using outer space," Yuri Zaitsev, a department chief of the Institute of Space Research of the USSR Academy of Sciences says in a report provided to Defense Daily by the Soviet Union.

"Taking a look at the future, one can express a firm conviction that the launching of the Salyut-6 station has paved the way for manned flights to other planets of the solar system," he said.

Zaitsev emphasized that "new records are not the main thing" in the increasingly longer duration Soviet manned space flights, that the longer flights are producing specific knowledge for possible planetary missions.

He said that this point has been made by Soviet cosmonaut Konstantin Feoktistov, who he quoted as saying: "The efficiency of prolonged orbital flights increases, on the whole, two-fold or three-fold as compared with short space flights. A considerable increase in the duration of manned space flights produces an economic effect and helps one to realistically assess the feasibility of manned space flights to the closest planets. In the future and perhaps in the not too distant future such flights will no doubt be accomplished." (Defense Daily, Vol. 110, No. 29, Wednesday, June 11, 1980, p 212)

June 16: Thirteen architectural firms interested in providing engineering design services related to a new $8.5 million expansion program at the Kennedy Space Center's Visitors Center, recently attended an orientation meeting here. TWA Services, Inc., KSC's concessionaire for operating the Visitor's Center and public bus tour program of the Spaceport, hosted the day-long event.

Kennedy Space Center awarded TWA Services a 10 year concession agreement in September, 1979, which is designed to enhance facilities and services at the Visitors Center. Already among the most popular tourist attractions in Florida, the Visitors Center is taking steps to expand its public visitor program because of the coming era of the Space Shuttle and the increase in tourism which it is expected to bring.

Expansion projects contemplated for the Visitors Center will help communicate a greater understanding of the goals and accomplishments of the nation's aeronautic and space efforts. Projects under consideration include: a 500-seat theater and exhibit area, an IMAX (large screen format) theater and food/sales area, a lunar landscape and lake, a new lobby entrance, site-landscaping and rocket garden walks, a food service and patio area, sales service, administration and central receiving buildings, a new entrance and roadway and general facility renovation. (NASA News Release No. 114-80, June 16, 1980)

o By the overwhelming vote of 285 to 29, the House passed the $5,662,154,000 FY' 81 authorization for NASA recommended by its Science & Technology Committee, representing an increase of $104.5 million over the amount requested by the President in his revised budget.

The Senate earlier approved a $5,569,854,000 FY '81 NASA authorization, $52.3 million below the amount voted by the House last week.

The House support for the space program will be further tested when Congressman Boland's appropriations subcommittee sends up its legislation to cut funding from the FY '80 NASA budget to terminate the International Solar Polar Mission, an action opposed by the House Science & Technology Committee. That action, together with the $300 million FY '80 NASA supplemental may come up as early as tomorrow.

Boland's subcommittee is expected to report its markup of the FY '81 NASA appropriation this week, with a reduction from the authorization figure anticipated. Senator Proxmire's appropriations subcommittee has not yet gotten to the FY '81 NASA markup.

Additions to the President's request made in the House passed authorization include $5 million for long lead materials such as titanium for a fifth Shuttle Orbiter; $12 million for development of the Solar Electric Propulsion System (SEPS), $18 million for Spacelab payloads, $9.3 million for the Operational Land Observing System, $8.1 million for Space R&T, and $20.5 million for Aeronautical R&T.

In passing the authorization, the House defeated 225-90 an amendment by Rep. Ted Weiss (D-N.Y.), submitted annually, to delete the $23.5 million in the NASA budget related to R&D on an SST. (Defense Daily, Vol. 110, No. 32, Monday, June 16, 1980, p 239)

June 17: The reusable surface insulation tiles on the Space Shuttle Orbiter Columbia successfully withstood a simulated separation of the External Tanks in a "pyrotechnic shock test" Saturday at the Cape, which involved the firing of explosive bolts attaching the pipes holding the tanks to the underside of the Orbiter.

NASA officials, who said that the tiles had been damaged in previous simulations, were encouraged by Saturday's results, which are still being analyzed, and said that the maiden flight of the Columbia could come as early as February if there are no major problems between now and then.

NASA told Defense Daily yesterday that there are now 26,147 RSI tiles installed on the Columbia, leaving 4775 of the 30,922 tiles to be installed. The agency estimates, however, that, with rejections, some 5000 tiles will have to be installed.

Last week, a net of 179 tiles were added to the Columbia -- with 544 tiles installed and 365 tiles removed after failing pull-tests. (Defense Daily, Vol. 110, No. 23, Tuesday, June 17, 1980, p 247)

June 18: The last of the Space Shuttle Orbiter Columbia's three main engines successfully completed its second flight acceptance test Monday with an eight minute and 40 second ground test run that exceeded the time required to put a Shuttle into orbit. All three engines will now be returned to the Kennedy Space Center where they will be mounted on the vehicle before its maiden flight into space.

During the Monday firing, engine number 2007 underwent throttling and gimballing exercises to test its ability to change speed and direction after lift-off. The other two flight engines, numbers 2005 and 2006, successfully completed their second flight acceptance tests on June 2 and June 5 respectively, reaffirming the readiness of the three engines for flight.

The three engines had previously demonstrated their flight readiness in test firings last year. Since that time, several modifications were made and NASA felt it advisable to retest the engines.

While the Columbia's engines have completed their checks, testing of the Shuttle engine and associated main propulsion equipment designe will continue through the summer at the National Space Technology Laboratories near Bay St. Louis, Miss. The Marshall Center is responsible for engine and propulsion system tests.

Single Shuttle engines have accumulated more than 73,000 seconds (20 hours. plus) of static test firing thus far, and engines clustered in main propulsion system testing have accumulated an additional 7,000 seconds (110 minutes). (Marshall Star, Vol. 20, No. 40, June 18, 1980, p 1)

- Voyager I is now just five months from Saturn -- due to make its closest approach on Nov. 12. It had 128,278,129 miles (206,443,636 kilometers) to go on June 9.

  The sister ship, Voyager II, was 261,623,345 miles (421,041,958 km) from Saturn the same day. It is due to reach the planet's immediate vicinity on Aug. 27, 1981.

  The two Voyager spacecraft provided for Earth's scientists thousands of pictures and other data on Jupiter and several of its moons, including discovery of a ring around the solar system's largest planet and volcanoes on the moon Io. (Marshall Star, Vol. 20, No. 40, June 18, 1980, p 2)

- The Landsat 2 satellite that was deactivated in January due to wear-induced failure on its primary flight control system has been restored to life by scientists at NASA-Goddard via a new magnetics compensation technique which helps maintain the stabilization of the spacecraft. NASA said that it believes the spacecraft will be able to operate near its previous capability, although limited to direct read-outs since its tape recorders have failed. The agency did not estimate the expected life of the spacecraft. With the Multispectral Scanner on Landsat 3 malfunctioning, the return of the Landsat 2 MSS data is of major importance to Landsat users. Timing of the launch of Landsat 4 is being held up by problems with the new Thematic Mapper and an agency decision on what instruments to include on the mission. (Defense Daily, Vol. 110, No. 34, Wednesday, June 18, 1980, p 251)

June 19: An amendment to the FY '81 NASA authorization which would have specifically stated that anyone who makes an invention via experiments carried into space by the Space Shuttle would retain all patent rights to such inventions was rejected by voice vote in the House.

The provision was limited to cases where NASA's involvement in the experiment involved only launch services.

The amendment's sponsor, Rep. Ron Paul (R-Tex.), said that under the National Aeronautics and Space Act of 1958, a person who contracts with NASA simply for transportation of his experiments into space "has a very good chance of losing all rights to any invention or patents that might result from such experiments." (Defense Daily, Vol. 110, No. 35, Thursday, June 19, 1980, p 261)

June 20: Flight certification firings of two Space Shuttle main engines have confirmed their flight readiness after twin 520-second tests at NASA's National Space Technology Laboratories earlier this month.

Engines 2005 and 2006 were fired individually on June 2 and June 5, respectively, and the third flight engine was scheduled for a certification firing this week.

The engines had been fired and flight verified last year, then were shipped to KSC and installed in the orbiter. They were removed for various modifications to engine pumps, valves and nozzles, and the decision to re-test them was made.

The re-test firing for each engine consists of a single, 520-second burn, during which the engine is throttled from 100 percent of its rated power back to 65 percent. Throttle-ability is an important and technically difficult aspect of the Space Shuttle engine design.

With two of the three engines successfully tested, Shuttle main engine managers at Marshall Space Flight Center say that the tests should be complete in time to return the engines to KSC and install them in the orbiter by the end of July. (Spaceport News, Vol. 19, No. 13, June 10, 1980, p 1)

o On May 17, 1974, when Delta-102 launched the first Synchronous Meterological Satellite, the KSC Fact Sheet issued for the launch said: ". . . the SMS system will serve as a full-time monitor for dangerous storms or unusual hazards. These could be tsunami (tidal waves) caused by earthquakes, volcanic eruptions, major landslides, or other large disturbances."

The ability to observe "volcanic eruptions" meant little to the inhabitants of the Pacific Northwest until March 27 of this year, when a series of light earthquakes was followed by emissions of steam, smoke and ash from Mt. St. Helens, in Southwest Washington.

And on May 18, at 8:39 a.m. PDT, the mountain blew its top, blasting away 1,200 feet of its height in the worst volcanic explsion in the contiguous 48 states within modern times. (Spaceport News, Vol. 19, No. 13, June 20, 1980, p 1)

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UPCOMING LAUNCHES - 1980

MISSION	VEHICLE	PAD	DATE
GOES-D (1)	DELTA 6:38-7:10 p.m. EDT	17A	AUGUST 28
SBS-A (2)	DELTA	17A	OCTOBER
FLTSATCOM-D (3)	ATLAS CENTAUR	36B	OCTOBER
INTELSAT V F2 (4)	ATLAS CENTAUR	36B	NOVEMBER

KEY

(1) Geostationary Operational Environmental Satellite

(2) Satellite Business Systems communications satellite

(3) FLeet SATellite COMmunications spacecraft, Navy

(4) Commercial communications satellite

(NASA News Release No. 115-80, June 20, 1980)

o Satellite Business Systems (McLean, Va.), who committed itself to using the Space Shuttle to launch its communications satellites three years ago, has become the first U.S. firm to sign a contract with NASA for a Space Shuttle launch.

Under the agreement, SBS's third satellite will be launched aboard the Shuttle's first commercial flight in November 1982.

SBS's first two satellites will be launched by the Delta 3910 launch vehicle on Oct. 23, 1980, and in April 1981.

The SBS launches will be insured by several companies including Lloyd's of London and Aetna Life & Casualty. The satellite service company is owned by Aetna, Comsat General and IBM. (Defense Daily, Vol. 110, No. 36, Friday, June 20, 1980, p 264)

o Engines and propulsion elements of the ESA/CNES Ariane launch vehicle which failed during launch from Kourou, French Guiana on May 23, including the engine which malfunctioned, have been recovered from the Atlantic Ocean.

Complete engine "D", which began malfunctioning when the Ariane LO-2 vehicle was about seven seconds into its flight, was recovered on June 16 about 5 kilometers south of the Iles du Salut, off French Guiana.

Engineers of the French Centre National D'Esudes Spatiales (CNES) and the Societe Europeenne de Propulsion (SEP) dismantled the "D" engine in preparation for a later inspection at the SEP facilities at Veron, France. In addition, a complete engine "B" and the servomotors and turbopumps of engines "A" and "C" were also recovered.

The team investigating the failure are expected to report their findings at the end of the month. The schedule of additional tests and the next test flights will not be prepared until the team reports on the results of its investigation.

The May 23 flight was the second flight of the Ariane vehicle and followed the successful maiden flight of the vehicle in December. Four flights of the rocket and two successes were planned for demonstrating the reliability of the system before declaring it operational.

The latest test attempt carried, in addition to a technology monitoring capsule, a 1105-kg Firewheel magnetospheric monitoring satellite from West Germany, and a 92-kg Oscar-9 satellite provided by Amsat-Germany. (Defense Daily, Vol. 110, No. 36, Friday, June 20, 1980, p 266)

- NASA's Solar Maximum Mission, launched in February to advance man's understanding of solar phenomena, has taken what may be the "most significant observations" ever made of a solar flare. On May 21, the spacecraft's six instruments monitored a solar flare which covered more than 2 billion square miles of the Sun's surface for 40 minutes, knocking out frequencies on Earth for more than 30 minutes and creating a nine-hour geomagnetic storm. Preliminary data indicated that core temperatures of the flare may have been more than 100 million degrees F, compared to a normal surface temperature on the Sun of 8000 - 10,000 degrees F. (Defense Daily, Vol. 110, No. 36, Friday, June 20, 1980, p 268)

- The delay-plagued space shuttle program was stalled again this time by a big, stubborn bull alligator.

  Thw gator, Ol' Albert, kept space agency officials at bay for an hour, delaying a shuttle rescue test in Albert's home, Alligator Lake.

  A longtime lake resident who has been keeping a low profile lately, Albert poked his snout into the 10 a.m. test, which was designed to establish rescue procedures in case the shuttle orbiter misses the space center's landing strip and ends up in the drink at the end of the runway.

  Officers of the Florida Game and Fresh Water Fish Commission were called when the 13-foot, 8-inch gator made it clear that he wasn't going to watch meekly from the sidelines.

  The officers finally snared Albert, but it wasn't easy.

  Three of them got a rope around him, but the 1,000-pound gator took their boat on a quick tour of the lake before they could rope him again. With the help of space center workers, the officers finally got Albert ashore and tied him securely for a trip to Busch Gardens at Tampa.

  "He didn't tire," said commission officer John Tanner. "We wanted to run him around a bit to get him tired so we could catch him, so we could wear him out. He didn't get too tired, but we sure did."

  Officials said Albert, estimated to be more than 50 years old, couldn't stay at his home, though it is part of the Merritt Island Wildlife Refuge, because more tests are planned.

  With Albert gone, the test started.

Two dummy astronauts, who had been waiting patiently in the plywood nose of their mock shuttle orbiter, were rescued without a hitch. (Sentinel Star, June 20, 1980)

June 25: A ring similar to those surrounding Saturn today may have existed around Earth 34 million years ago, according to a scientist at the Goddard Space Flight Center.

Dr. John A. O'Keefe calculates that the ring, composed of tektites (glass meteorites), lasted one to several million years. The shadow of the rings on Earth's surface caused dramatic climatic changes in the temperate zones.

The sudden climatic change 34 million years ago has been known to geologists for many years as the terminal Eocene event.

This change is considered to be the most profound climatic event to have occurred during the entire Tertiary period between 65 million and 2 million years ago.

The basis for O'Keefe's belief lies in the fact that the biological changes coincide quite accurately with a massive fall of tektites which O'Keefe thinks might have come from an eruption on the Moon.

O'Keefe suggests that the tektites that missed Earth went into orbit around our planet and organized themselves into a ring like the rings around Saturn.

Once formed, the ring blocked out the rays of the Sun in the northern hemisphere in the winter, due to the Sun's location below the plane of the equator. The shadow cast by the ring resulted in the lowering of winter temperatures. (Marshall Star, Vol. 20, No. 41, June 25, 1980, p 2)

o A team of scientists working for NASA has determined that the rotation period of Saturn -- a Saturn day -- is some 24 minutes longer than had previously been estimated.

Using bursts of radio noise from Saturn, recorded by the two Voyager spacecraft, the length of one day was determined to be 10 hours, 39.9 minutes long.

Previously, astronomers using Earth-based observations had calculated the length of a day at about 10 hours, 15 minutes. (Marshall Star, Vol. 20, No. 41, June 25, 1980, p 2)

o The first detailed organization chart of the Marshall Center, published Nov. 28, 1960, had 132 names on it.

An indication of magnitude of personnel turnover can be seen in the fact that only 15 of the 132 are employees today. Those 15 are: C. O. Brooks, Jr., EG01; F. E. Digesu, PD11; W. H. Dodd, EM02; E. G. House, CM45; G. A. Kroll, EP11; W. R. Lucas, DA01; C. A. Lundquist, ES01; J. W. Moody, EG02; F. B. Moore, EC01; C. J. Rieger, EM23; S. E. Smith, EC01; T. H. Smith, EM01; F. A. Speer, TA01; W. W. Vaughn, ES81; and W. A. Wilson, EH41.

Since the center was formed 20,692 persons have been assigned payroll numbers. (Marshall Star, Vol. 20, No. 41, June 25, 1980, p 3)

o The Soviet Union's Salyut 6 space station, involved in a dozen manned revisits, marked its 1000th day in space June 24. Cosmonauts Ryumin and Popov have been in space for 76 days, 99 days short of the record set last year by Ryumin and Lyakhov. (Defense Daily, Vol. 110, No. 39, Wednesday, June 25, 1980, p 285)

o The Soviet Union launched a Molniya 1 communications satellite Saturday, June 21 from Plesetsk as part of the Orbital network. The satellite was put into an initial orbit of 658/40,707 kilometers, 62.5 degrees, and a period of 12 hours and 18 minutes. (Defense Daily, Vol. 110, No. 39, Wednesday, June 25, 1980, p 288)

o The Viking I Orbiter photographed an unusual meterological phenomenon on Mars Feb. 22, which NASA scientists believe was either a weather front or an atmospheric shock wave. The phenomenon appears most significantly as a sharp, dark line on the photographs. (Defense Daily, Vol. 110, No. 39, Wednesday, June 25, 1980, p 288)

o The House HUD-IA Appropriations Subcommittee, which withheld the R&D portion of the FY '81 NASA appropriations bill awaiting a decision on its effort to terminate the International Solar Polar Mission in FY '80, is not expected to mark-up the NASA program funds until after the July 4 congressional recess. It does expect to seek quick House approval for the remainder of its bill, which includes a $20 million reduction in NASA Construction & R&PM request.

The subcommittee is not saying what actions it intends to take on the NASA R&D bill, but there is little doubt that it plans to make some reductions in the Space Science portion of the agency's request. A subcommittee source pointed out that while a point of order blocking the subcommittee's effort to terminate the NASA/European Space Agency ISPM in FY '80 was upheld, this does not preclude the subcommittee from deleting funds for the program in FY '81. Such an action, however, would face opposition from the Carter Administration, which is seeking to strengthen ties with America's European allies.

The subcommittee, chaired by Rep. Edward Boland (D-Mass.), has criticized the way the Administration and NASA have gone about reducing the NASA budget, saying that stretchouts and delays only add to the eventual cost of programs, and, instead, advocating termination of some projects.

Meanwhile, the Senate HUD-IA Appropriations Subcommittee, chaired by Sen. William Proxmire (D-Wis.), has indicated that it will wait until after the House mark-up before it takes up the FY '81 NASA appropriations bill. (Defense Daily, Vol. 110, No. 39, Wednesday, June 25, 1980, p 291)

June 27: NASA's John F. Kennedy Space Center has awarded an $8,645,000 contract extension for minicomputers and associated equipment for the Space Shuttle's Launch Processing System to Modular Computer Systems, Inc., of Ft. Lauderdale, Florida.

The Launch Processing System will control and perform much of the Space Shuttle vehicle checkout automatically while the vehicle components are being prepared for launch. It will also provide the capability for work order control and scheduling, and conduct countdown and launch operations. The equipment and related services called for under this contract are for the Launch Processing System here, and for use with the Department of Defense's payload checkout system at KSC and its Space Shuttle launch facilities being built at Vandenberg Air Force Base, California. (NASA News Release No. 117-80, June 27, 1980)

o NASA Administrator Robert Frosch reported yesterday that NASA has tentatively decided to launch the Landsat-D satellite as early as possible with the Multi-Spectral Scanner only, dropping the new Thematic Mapper, but that it hopes to incorporate the TM along with the MSS on the follow-on Landsat-D mission.

While a final decision will be made later this summer, he said, NASA is proceeding with planning actions necessary to implement the plan stated above. At the same time, he said that the agency is retaining the option to either: 1) incorporate the TM and MSS on both spacecraft; or, 2) drop the TM from both missions. (Defense Daily, Vol. 110, No. 41, Friday, June 27, 1980, p 305)

June 30: Space shuttle initial launch capability from Vandenberg AFB will be delayed from June, 1984, until at least the fall of 1984, Air Force officers here believe.

Slip in initial operational capability is caused by space shuttle first launch delays and a late start on shuttle launch pad construction here. Shuttle pad construction is just getting under way and in about a year 1,200 persons will be involved in building Vandenberg shuttle facilities.

Vandenberg initial operational capability date was December, 1983, but that was moved to June, 1984, in late May to bring scheduling more in line with shuttle readiness. Further slip to late 1984 is not on the official schedule, but engineers here believe eventual delay to that period is dictated by construction schedules coupled with shuttle readiness expectations.

First Defense Dept. space shuttle launch from Vandenberg has been planned for October, 1984, and an assessment is under way to determine how the delay in Vandenberg shuttle capability will affect this and other early shuttle missions planned for a Vandenberg launch.

Civilian space missions will be launched from Vandenberg into polar orbits on the space shuttle just as civilian payloads have been launched from here for years on expendable boosters. (Aviation Week & Space Technology, Vol. 112, No. 26, p 59)

- The Soviet Union launched a military reconnaissance/surveillance satellite, Cosmos 1189, from Plesetsk on Thursday, June 26. It was put into an initial orbit of 209/330 kilometers, 72.9 degrees, 89.5 minutes. (Defense Daily, Vol. 110, No. 42, Monday, June 30, 1980, p 311)